THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

EDITED BY

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Contributors who wish their articles to appear in the next number, should forward them before the 1st of August.

Compensation is allowed for original articles and reviews, except when illustrations or extra copies are desired. A *limited* number of extra copies will be furnished to authors, *provided the request for them be made at the time the communication is sent* to the Editors.

Communications postponed for want of room shall receive early attention.

The following works have been received:—

Studien aus dem Institute für Experimentelle Pathologie in Wien aus dem Jahre 1869. Herausgegeben von S. Stricker; I. Mit 4 Holzschnitten; und 2 Tafeln. Wien. Wilhelm Braumüller, 1870.

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THE

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FOR JULY 1870.

Art. I.—*The Treatment of Syphilis by repeated Inoculations of Matter derived from Venereal Sores: so-called Syphilization.* By Freeman J. Bumstead, M. D., Professor of Venereal Diseases in the College of Physicians and Surgeons, New York. (With a wood-cut.)

The treatment of syphilis by the repeated inoculation of venereal matter, proposed by M. Auzias-Turenne in 1844, subsequently tested by M. Melchior Robert, of Marseilles, and practised to a large extent with doubtful results by M. Sperino, of Turin, has of late years been revived in Norway, where it has attracted great attention and called forth violent discussion. Rumours—nay, direct testimony as to its efficacy coming from impartial observers visiting this distant region, and the importance of certain pathological questions which it involves, demand that its claims should receive more attention than they have yet had either in this country or abroad.

The chief advocate of this system has been Prof. W. Boeck, of Christiania, who, in 1862, under the auspices of the Norwegian Government, issued a large and laborious work, in which were reported 252 cases treated by "syphilization," and the results compared with those obtainable by mercury and other modes of treatment.

In the autumn of 1865, Prof. Boeck visited England, and treated in this manner twenty-seven cases at the Lock Hospital of London, at the invitation of the attending surgeons. Messrs. Lane and Gascoyen were appointed a committee to report upon the progress and result.[1] These gentlemen, while acknowledging the disappearance of syphilitic symptoms under repeated inoculations, expressed the opinion that "syphilization is not a treatment which can be recommended for adoption; that even if it could be admitted to possess all the advantages claimed for it by its advocates, its superiority over other modes of treatment, or in many instances over no treatment at all, would not sufficiently compensate for its tediousness, its painfulness, and the life-long marking which it entails upon the patient." As may readily be supposed, this verdict was less acceptable to Prof. Boeck and his friends than to his opponents. In justice to the former, however, it should be observed that the prejudice against "syphilization" in England has from the first been very strong, and its claims have been listened to, if at all, by very reluctant ears. As an instance of this fact, it may be mentioned, that a copy of the favourable report of a Norwegian committee appointed to investigate "syphilization," which I shall hereafter quote, was sent to every medical journal of Great Britain, at the time of its publication, several years ago, but has not been noticed by a single one of them up to the present day.

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[1] Medico-Chirurgical Transactions, vol. l.

About a year ago, Mr. Jonathan Hutchinson, of London, who is well known for his contributions to our literature of venereal diseases, and as an able and impartial observer, made a tour through Norway, and published in the numbers of the *Medical Times and Gazette* for 1869, accounts of what he saw of "syphilization," which must be regarded as decidedly favourable to the practice.

During the last seven months, Prof. Boeck has been in this country, and I have had the opportunity of observing his practice in my wards at Charity Hospital, where he kindly consented to take charge of a number of cases, and treat them by "syphilization." It may be well for me to remark at the outset that I have not become a convert to his practice, but he has enabled me to observe phenomena of no slight interest, and of great scientific importance, which I was before unwilling to believe on imperfect testimony; and I desire above all to testify to the private worth and the earnest, simple sincerity of the man himself, and claim for him an impartial hearing. Whatever may be thought of the *practical value* of "syphilization," I venture to predict that it will in future be recognized as having added much to our knowledge of the pathology of venereal diseases.

The claims of Prof. Boeck and his friends are these, that syphilis may be cured by the repeated inoculation of venereal matter, and that the relapses after such treatment are by far less frequent than after any other method.

The number of cases treated at Charity Hospital was only five; four in which no previous treatment had been adopted, and one old case of syphilis, in which all previous treatment had failed. One of the former cases eloped, so that the number of cases in which the treatment had a fair trial was really reduced to three. Of course this small number cannot be offered as a test of the value of "syphilization," except when taken in connection with those cases observed in England and with those reported in Norway, and it is only in this light that they are here reported.

Prof. Boeck insists upon the division of syphilitic cases into two classes, those which have received no treatment at all, or at least no mercurial treatment, and those in which this mineral has already been administered. He regards the former class as alone adapted to experience the full benefit and exhibit the merits of his mode of practice. In the latter class, he maintains that the treatment is much more tedious, that relapses are more likely to occur, and the final result is uncertain. He occasionally undertakes them, but only at the urgent request of the patient, and upon the latter's responsibility. As an evidence of his strong feeling on this point, I will mention the fact that an interne in charge of a patient undergoing "syphilization" at Charity Hospital, gave him one day two compound cathartic pills to relieve constipation, and Prof. Boeck attributed to the mercury therein contained certain unfavourable symptoms which occurred several weeks afterwards.

"Syphilization" is never employed for a chancre alone before the development of secondary symptoms; but the sooner it is resorted to after the appearance of the latter the better.

Matter employed for the Inoculations.—In his earlier inoculations Prof. Boeck employed only matter derived from chancroids. He states that for the last few years in Norway he has used the virus of "hard" (true) chancres, which, after the example of Mr. Henry Lee, of London, he has succeeded in inoculating upon the patient himself after first stimulating the sore to discharge a purulent secretion, by the application of dry lint or some irritant, as savine powder or ointment. If the inoculations do not take, they are repeated daily, and may succeed even after several weeks' failure. Some German physicians have resorted to passing a filiform seton through the indurated base of the sore in order to render its secretion inoculable, but Prof. Boeck regards this practice as dangerous. In some instances all these attempts to auto-inoculate the secretion of true chancres fail. When successful, a pustule is developed without incubation in the course of forty-eight hours; there is no induration of its base or of the neighbouring lymphatic ganglia; the secretion is re-inoculable, and, in short, the phenomena are the same as if chancroidal matter had been used. Prof. Boeck believes, however, that when such matter is employed for "syphilization" that the duration of the treatment is shortened, and the effect rendered more certain. Dr. Gjör, of Christiania, has also succeeded, although with difficulty, in auto-inoculating the secretion of mucous patches, and has employed this matter in the "syphilization" of patients. In the cases at Charity Hospital, with one exception, the matter was derived from soft sores (chancroids). I shall refer to this point hereafter. The chancroidal matter was always first auto-inoculated upon the patient bearing the chancroid, and the secretion of the pustules thus produced was afterwards transferred to the patient whom we wished to "syphilize."

How the Inoculations are made.—The sides of the chest are selected for the first inoculations, because on this part of the body the resulting sores are found to be smaller and to show less tendency to phagedenic action than elsewhere. Moreover, the distance of lymphatic glands renders the possible occurrence of glandular inflammation less probable. Three inoculations are made upon each side below the nipples. Pustules are usually developed within forty-eight hours, and, on the third day, matter is taken from one or more of these and re-inoculated. Care is taken that the successive inoculations are not too near each other, lest they should happen to coalesce and form troublesome sores. Thus, if the first were made just below the nipples, the second are made at some distance below, the third towards the right, the fourth to the left, and so on. In keeping a diagram of the inoculations, however, they are represented as approximated for the sake of convenience. This process is further continued, always taking the matter from the last series every third day. It will occasionally happen that some intercurrent disease, as a severe cold, some febrile attack, etc., will prevent the success of the inoculations, in which case they are to be repeated daily, employing matter from the last pustules formed.

Continuing this process, it is found that the pustules and resulting ulcers gradually become smaller and smaller, until they are too minute to furnish matter for further inoculations, or that the inoculations fail altogether. Fresh matter from some other source is then obtained, and inoculated in the same manner as the first, as long as it will take. This series of inoculations will usually be found to be less severe and fewer in the number of its generations than the preceding. Virus from a third and fourth source may then be tried, but sooner or later the walls of the chest will cease to react under the stimulus of any matter whatever, and immunity of this portion of the integument is obtained.

The same process as that now described remains to be performed upon the arms, and subsequently upon the thighs. The matter may at first be taken from some of the old inoculations upon the chest, and, when this ceases to act, from other sources.

When, finally, these three regions, viz., the chest, the arms, and the thighs, cease to react under the insertion of venereal matter, the treatment is regarded as complete. Should any relapse of the syphilitic symptoms subsequently occur, a few inoculations, according to Prof. Boeck, will be sufficient to dissipate them, the complete immunity of the skin having meanwhile disappeared in most cases.

Such is a general description of the process of "syphilization." Prof. Boeck insists especially upon the importance of carrying out its details, a number of which are here necessarily omitted. He states that years of labour have been required for the full elaboration of his treatment. I once expressed to him the opinion that it would be extremely difficult for any one to carry out this process in a proper manner from any mere description without having seen it done, and to this remark he gave his full assent.

In order to be of any benefit, syphilization, once commenced, must be followed up until complete immunity is attained. The most frequent and effective argument employed by Prof. Boeck with recalcitrant patients was that they would be left in greater danger than ever if this mode of treatment were not pursued to the end.

Prof. Boeck's manner of keeping a record of the inoculations, of their success or failure, and of the source in each instance from which the virus was derived, is quite ingenious. A rough outline of the human frame is drawn upon a sheet of paper, and the inoculations are noted in the form of small circles, with the accompanying date. If any points fail to take, the corresponding circles are filled up with black, as shown in the accompanying cut of Benner's case (see p. 23), where the numbers stand for the days of the month, and the letters are the initials of the respective months.

[If, in any instance a series of inoculations is not continued, although the chart shows that the last were successful, it is to be inferred that the amount of matter in the last pustules was not sufficient for further inoculation.]

The following cases, in which "syphilization" was employed at Charity Hospital, are briefly reported :—

CASE I.—Wm. Benner, aged 18, admitted Oct. 5, 1869. Discharged Feb. 26, 1870.

History.—First and only act of sexual intercourse July 27, 1869. Sore upon internal surface of prepuce appeared three weeks afterwards.

Present condition.—No previous treatment. Chancre nearly healed. Its induration still marked. Decided induration of glands in both groins. Roseola commencing on chest and abdomen.

Summary of inoculations.—Inoculations commenced Oct. 8, 1869, with matter from Alexander Johnson (soft), upon the chest. This ran through eight generations upon each side, when it failed.

New matter taken from John Finlay (soft), Oct. 31st, and inoculated upon the chests, ran through six generations on each side, and then failed. Subsequently matter from Downing (soft), and Gillum (soft), was inoculated upon chest, and was successful, although the pustules generally were small, through about eleven generations on each side, terminating Dec. 22.

174 *Inoculations upon the chest, of which* 87 *failed.*

On Nov. 18th inoculations were made upon the arms with matter taken from inoculations upon the right chest of Nov. 12th, originally derived from Finlay. This ran through six generations on each arm, when the pustules became so small that there was not sufficient matter for further inoculation.

Matter was afterwards taken from Gillum and inoculated upon the arms, and ran through ten generations.

114 *Inoculations upon the arms, of which* 31 *failed.*

The thighs were first inoculated Dec. 7th, with matter from his own arms, which ran through twelve generations upon each thigh. Matter subsequently inoculated from various sources succeeded for six or seven generations. Fresh matter from Farrell failed.

Number of inoculations on thighs 153, *of which* 58 *failed.*

Progress and result.—Oct. 26th, eruption about the same. Has suffered from diarrhœa, loss of appetite, and malaise, the last few days. Prof. Boeck ascribes to this fact the failure of a number of the inoculations.

Nov. 1. Eruption improved.

21*st.* Iritis of both eyes, not severe. Ordered collyria of atropia. General condition, which for a time was much depressed, is now much improved.

28*th.* Iritis nearly gone.

Dec. 13. Roseola has disappeared, except upon the back.

Jan. 6, 1870. No traces of the eruption. General condition excellent. Face quite fat.

12*th.* One of the scabs upon the patient's right thigh has been rubbed off, and the underlying ulcer has taken on phagedenic action and is surrounded by an inflammatory areola. Loss of appetite, and general febrile reaction. Ordered tinct. ferri chloridi gtt. xxx. every three hours.

15*th.* Ulcer on thigh is about one and a quarter inches in diameter, and penetrates to the muscular tissue beneath ; its floor is covered with a thick and copious purulent secretion ; the skin surrounding it is highly inflamed for the extent of an inch in breadth, and the surface of the thigh for many inches beyond is swollen and œdematous. The whole aspect of the sore is very alarming, and Prof. Boeck himself is quite anxious with regard to the amount of destruction of tissue it may involve.

18*th.* Ulcer on thigh is assuming a more healthy aspect.

24*th.* Surface of ulcer has cleared off, and is covered with healthy granulations.

Feb. 26. Patient discharged. No traces of syphilis. General condition excellent. Some of the ulcerations produced by the inoculations not yet healed.

CASE II.—John Finlay, aged 26, admitted Oct. 20, 1869. Discharged Feb. 10, 1870.

History.—No previous attack of syphilis. Had connection early in August. Chancre appeared upon glans penis about August 18th. Noticed an eruption upon chest and abdomen September 20th. Was treated in the city for primary sore, but nature of remedies unknown.

Present condition.—Induration of glands of both groins, of epitrochlear glands, and of one post-cervical gland, well marked. Chancre healed, leaving slight induration. An eruption of roseola covers the thorax, abdomen, arms, and thighs.

Summary of inoculations.—Inoculations commenced upon *chest*, Oct. 21, 1869, with matter from William Benner (previous case). This ran through eight generations on the right chest and seven on the left, terminating November 12th.

Nov. 15. Fresh matter was inserted in the chests from Downing (supposed to be hard). This ran through only three generations on one side and two on the other.

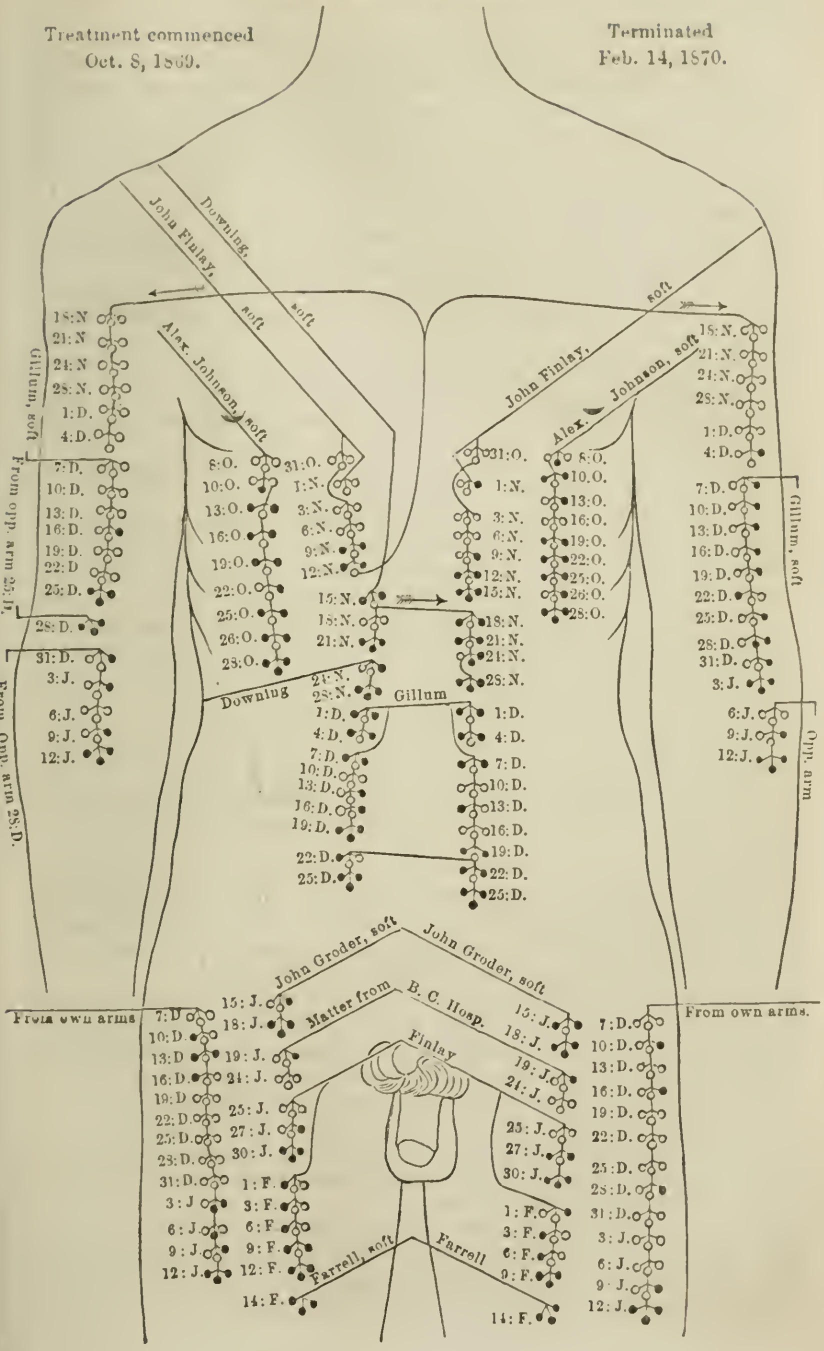
28*th.* Matter was again taken from Benner and went through three removes.

Dec. 10. Matter from Gillum (soft) ran through five generations on the right chest and three on the left.

Total number of inoculations upon chest 132, *of which* 55 *failed.*

Arms were first inoculated November 11th, with matter from Downing, which took for three removes on right and seven on left. Matter from

Case of WILLIAM BENNER.



Treatment commenced Oct. 8, 1869.

Terminated Feb. 14, 1870.

Gillum and from Benner afterwards went through nine generations on right and six on left.

Total inoculations on arms 104, *of which* 45 *failed.*

The thighs were first inoculated December 12th, with matter from his own arms. This succeeded in eleven generations on right and twelve on left. Upon three separate occasions afterwards matter was taken from Benner and inoculated upon thighs, but failed every time. Matter, however, brought from Brooklyn City Hospital, and also that taken from John Groder (soft), succeeded in six generations.

Total inoculations on thighs 138, *of which* 52 *failed.*

Progress and result.—November 9, eruption fading on chest and abdomen, but more marked in lower extremities. Appetite good.

Dec. 10. Complains of malaise and pains in knees, elbows, and other joints. Iritis is commencing in both eyes. Ordered collyrium of sol. atropiæ.

13*th.* Iritis more intense and painful.

22*d.* Iritis disappeared without leaving adhesions of iris or other trouble in eyes. General condition good, although pains still continue in extremities.

Jan. 12, 1870. Another attack of iritis. Patient very despondent and restive under the treatment.

15*th.* Iritis better. General condition excellent. Face noticeably fat.

20*th.* Another sharp attack of iritis in left eye.

24*th.* Iritis improved. No treatment whatever has been employed for these attacks of iritis, except instillations of atropia.

February 10. Patient discharged without any syphilitic symptoms.

Patient was seen by me May 3d, 1870. He had had no further trouble, and was looking remarkably well.

CASE III.—Moses Foult, aged 32, admitted October 26, 1869. Eloped February 23, 1870, within a few days of the time when he would have been discharged.

History.—Chancre appeared two months ago, ten days after exposure. Condylomata made their appearance in the neighbourhood of genital organs ten days ago.

Present condition.—Chancre healed. Induration of inguinal ganglia. Condylomata abundant on integument of penis, scrotum, internal parts of the thighs, and perinæum. Mucous patches upon tonsils, fauces, and internal surface of upper lip. Engorgement of post-cervical glands, and epitrochlear gland of right arm. No previous treatment.

Summary of inoculations.—This case is remarkable from the short time required to obtain immunity under the inoculations. After the first series of successful inoculations upon the chest, a large proportion of those made subsequently upon the chest, arm, and thighs, failed. It will also be noticed that the syphilitic symptoms in this case were of a mild character, and consisted chiefly of condylomata and mucous patches.

Inoculations were commenced upon the sides of the chest, October 31, 1869, with matter taken from the inoculations of John Finlay (Case II.). This ran through seven generations.

Subsequently matter from Benner was successful in four removes; and from Downing in seven removes; but in these last, out of six inoculations made upon any one day, three would usually fail.

Total inoculations on chest 189, *of which* 97 *failed.*

Inoculations upon patient's one arm, the other having been amputated at shoulder-joint, were commenced with matter from Downing, November 24, but failed to take effect. On November 28, matter from Benner also failed. On December 1, matter from Carlin (soft) succeeded and ran through six generations. Subsequently, matter from Benner, which had before failed, succeeded and went through five removes. Finally, matter brought from the city hospital, Brooklyn, and that taken from Groder, and from Finlay, were tried without result.

Total inoculations on arm 69, *of which* 36 *failed.*

Inoculations were commenced upon the thighs, December 12, and were continued with matter from various sources, but with very slight success. As a general rule, they would not take at all, or would succeed for only one or, at most, two generations.

108 *inoculations in all were made upon the thighs, of which* 85 *failed.*

Progress and result.—This case progressed very much as if the patient neither had syphilis, nor was undergoing the process of syphilization. His syphilitic symptoms gave him but little annoyance, and the ulcers arising from the inoculations were generally so small, that he had no reason to complain as all our other patients did. No local treatment was applied to the condylomata; they were simply ordered to be kept clean. They showed little or no improvement until about December 13.

January 13, 1870. A few condylomata remain on internal surfaces of thighs and scrotum. Prof. Boeck advises "touching these with a crayon of nitrate of silver, since the result of recent inoculations shows that the patient is nearly cured." General condition very good; has gained decidedly in weight.

February 12. Several mucous patches of the fauces have recently appeared. Prof. Boeck remarks that "they are very common towards the close of 'syphilization.'" Ordered to be touched with crayon of nitrate of silver.

23*d.* Patient eloped. The condylomata about the genitals had disappeared. A single mucous patch remaining on the lip, attributed by Prof. Boeck to his smoking a short pipe, was the only syphilitic symptom left.

Case IV.—Thomas Downing, aged 20, admitted September 20; eloped December 24.

This patient entered the hospital with a commencing chancre, which was followed by an eruption of roseola.

Inoculations with the secretion of his own ulcer were commenced upon his chest October 24, and were repeated daily. At first they proved entirely unsuccessful, but pustules followed the inoculations of October 31, which were found to be re-inoculable, and were continued upon his chest through eleven generations. Some of this matter was also employed, as already noted, in the "syphilization" of the cases previously reported. The early elopement of this patient prevented our observing the effect of the treatment.

The only interest that this incomplete case had, was with reference to the apparent success of the auto-inoculation of a true chancre. Unfortunately, the inoculations were made by Prof Boeck, as was his habit in all these cases of "syphilization," by means of one and the same lancet with which he would inoculate one patient after another, without washing the instrument, but simply wiping it upon a dry towel after every time it was used. This fact rendered any certain conclusion as to the source of the virus impossible.

Case V.—Mary Stapleton, aged 27. Patient has been an inmate of the hospital several times before, for secondary syphilis, which was contracted four years ago. She has been freely treated by mercury, iodine, cod-liver oil, Donovan's solution, etc. etc., but is still suffering sadly from her old complaint. Undoubtedly, the great obstacle in the way of her improvement has been her intemperate habits. She is now employed as nurse in the hospital, and having access to the stimulants ordered for the patients, is rarely seen when not more or less under the effect of liquor. This fact should be borne in mind in connection with the poor success of our attempt at "syphilization," which, however, she was anxious to try, and which we consented to apply in spite of her infirmity.

Present condition.—A dry tubercular eruption occupies the back, extending from the upper edges of the scapulæ to the lumbar region, and from three to five inches in breadth. Both lips are swollen and their surface denuded of epithelial covering. The tongue anteriorly is hypertrophied and ulcerated. General health deteriorated. Appetite poor. Bowels constipated.

Summary of inoculations.—In general, the inoculations took very poorly and it was often extremely difficult to obtain the slightest effect with any kind of virus in our possession. The sources from which the virus was taken (all of them soft) were so numerous, and so frequently changed that I shall not enumerate them.

In all, 87 inoculations were made upon the chest, of which 45 failed; 120 inoculations upon the arms, of which 90 failed; and 114 inoculations upon the thighs, of which 69 failed.

Progress and result.—*November* 18. Patient is improving in her general appearance. No change in the eruption.

December 5. Patient complains of nocturnal pains in the head. Prof. Boeck orders gr. x potassii iodidi three times a day.

13*th.* Eruption on back decidedly improved.

20*th.* General health still improving and eruption fading. The iodide of potassium is suspended on account of its producing a pustular eruption on face.

January 3. Not doing so well. Now confined to the bed, chiefly in consequence of the soreness of the inoculations and the difficulty of motion. Several glandular swellings have appeared in the sides and back of the neck, of the size of an English walnut, and threaten to suppurate. There is also one directly in front of the left ear. Complains of entire loss of appetite and copious night-sweats. Her thighs are extremely sore from the ulcerations which are covered with ecthymatous scabs, an inch and a quarter in diameter. Water dressings ordered.

I asked Prof. Boeck for an explanation of the threatening abscesses in the neck. He replied that they were due to the "revolution (?) in her system;" that they often occurred in old syphilitic subjects previously treated by mercury, and that they would do the patient good.

Jan. 20. Swellings in neck have failed to suppurate, and are subsiding.

Feb. 26. No inoculation has been made since the 6th of February. For the last two weeks patient has been taking a decoction of sarsaparilla and senna leaves, with the addition of five grain doses of the iodide of potassium three times a day.

The back is still covered with the old eruption, slightly faded in some places, and in others covered with thick yellowish crusts or lamellated scales.

Two weeks ago a spot of ecthyma appeared on her leg, going on to ulceration, and forming a circular ulcer of one and a half inches in diameter. Its edges were inflamed, and its discharge profuse. This was treated by Prof. Boeck with an ointment containing a scruple of camphor to an ounce of simple cerate, with little improvement.

Subsequently to this, several ulcerations appeared on the tongue, and attained an inch in diameter. They gave rise to very profuse hemorrhage, lasting for several hours. The patient was perfectly blanched and apparently moribund. Bleeding, however, was finally arrested by the pernitrate of iron.

May 4. Syphilitic symptoms not changed.

The patient's habits have been of the worst character, and she has been daily under the effects of liquor, in spite of every precaution. Hence the unfortunate result of the treatment cannot fairly be charged to the inoculations.

Effect of "Syphilization."—As I remarked at the outset, these few cases are intended to *illustrate*, rather than prove, the effect of "syphilization." Their number is too small for the latter purpose. I may be allowed, however, to state the impression which they formed upon my own mind, that these inoculations did have a decided effect in causing the disappearance of syphilitic manifestations, more especially those upon the skin, and that the influence upon the general condition of the patient was most favourable. I am referring, of course, to those cases which had not been subjected to previous medication, and in which, only, the treatment had a fair trial.

From a careful perusal of the cases reported by Prof. Boeck, of the cases given in the paper of Messrs. Lane and Gascoyen, and of those afforded by several other observers, I believe the following is a fair conclusion as to the immediate effect of this mode of treatment :—

Commonly no effect upon the syphilitic symptoms is perceptible for about three weeks. During the fourth or fifth week these symptoms improve, and especially the early eruptions upon the skin, which gradually fade away, and are the first to disappear. The lesions upon the mucous membranes and those situated near the outlet of mucous canals, as mucous patches, and condylomata, are more obstinate. Very much depends upon the habits of patients. If tobacco is avoided, if cleanliness is observed, mucous patches of the mouth and condylomata about the anus and vulva may also show a marked improvement. Otherwise, these may persist or even become aggravated, and still remain after the process of "syphilization" appears to be accomplished. [I would remark that this is also true after the mercurial treatment of syphilis.]

During "syphilization," attacks of iritis are common, and not unfrequently occur towards the termination of the case. No change of treatment is necessary, except the employment of a collyrium of a solution of the neutral sulphate of atropia (gr. ij–iv ad aquæ ℥j) three or four times a day, and the patient is not restricted with regard to ordinary exposure to light.

The effect of these inoculations upon the general condition of patients is certainly surprising. Their appetite improves; they increase in weight; and their whole aspect is changed for the better.

By the time the treatment is completed, as judged by the immunity to further inoculations, all syphilitic symptoms have commonly disappeared. [Prof. Boeck cautions us not to try to shorten the treatment by inoculations oftener than once in three days, lest immunity should be obtained before all the symptoms have had time to disappear.] The time ordinarily required for immunity, when mercury has not been given, is three and a half to four months.

In proof of the fact that repeated inoculations do exercise a favourable influence upon syphilitic manifestations, and that they effect their disappearance, at least for a time, it is unnecessary for me to refer to the testimony already alluded to, or that of others which has appeared in various medical periodicals. It is desirable, however, in justice to Prof. Boeck, to quote the conclusions of a report presented to the Medical Society of Christiania at its Session, April 22d, 1863, by Dr. Steffens, Physician to the Corporation of Christiania, Dr. Egeberg, and Prof. Voss, M.D., "a committee appointed to investigate the merits of a system of treatment known as syphilization," especially as this report has never before been published in English:—

"The undersigned, invited by Prof. W. Boeck to act as a committee in attending a series of experiments in which syphilization was made use of, and more particularly for the purpose of attesting to the results derived from this method of treatment, have, for a period extending from the beginning of the year 1856 until 1859, attended to this commission, through repeated visits to the particular wards in the hospital where said investigations were conducted. We have recorded the symptoms of disease present at the commencement of treatment; the changes which took place in the nature of the disease and condition of the patients during the influence of the same; and, further, the state in which the patients were discharged from the hospital, or ceased to be objects for our observation. We have, in most cases, personally seen and examined each individual patient once in every three weeks during the time of his treatment, and we have further regarded it as an important duty incumbent upon us to obtain, as far as was practicable, reliable information as to the condition of the patients after they had left the hospital."

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Here follow the records of observation in detail, and also a comparison with those resulting from a series of experiments simultaneously conducted by Dr. Hjort, upon the derivative plan of treatment. The committee concludes its report in the following words:—

"Taking into consideration all the above-mentioned facts, the committee arrives at this conclusion: That syphilization is a better method of treating the syphilitic disease than that of derivation, and, although it cannot positively assert that the former mode of treatment is in all cases curative, yet, all the members composing the committee fully agree in this opinion, that they are not aware of any mode of treatment in secondary syphilis which will accomplish more, or equally as much, as will be accomplished by syphilization, applied to persons who have not previously been subjected to treatment including preparations containing mercury.

"The committee having now completed its labours, cannot omit to render to Prof. W. Boeck the highest acknowledgment for the great skill and energy which he has evinced in the investigation as to the nature and treatment of syphilitic diseases."

Relapses.—Admitting the immediate effect of syphilization, the important question remains as to the protection afforded for the future. As we shall see hereafter, this mode of treatment is attended with many drawbacks, to which the only possible palliation can be, a greater amount of security against relapses, and especially against the late distressing and dangerous manifestations of the disease. It is here that the advocates of "syphilization" believe they find their strongest argument. *Prof. Boeck claims that the relapses after this treatment do not exceed twelve to fourteen per cent.*, and he supports his statement by the statistics of "over twelve hundred cases" occurring in his own practice. At a meeting of the Medico-Chirurgical Society of London, shortly after Prof. Boeck's visit to that city, Mr. Lee stated that Dr. Owre, of Christiania, had given him statistics with regard to the relapses after "syphilization," less favourable than the one furnished by Prof. Boeck; that Prof. B. made out the percentage as 12–13, while Dr. O. found it to be 15. This charge was certainly too trivial and puerile to deserve notice!

After the mercurial treatment of syphilis, Prof. Boeck estimates that the ratio of relapses averages about thirty to forty per cent., and I doubt whether any surgeon, who has an extensive venereal practice, will regard this statement as overdrawn; provided no cases be taken into the account in which secondary symptoms have not already made their appearance, and the cases are seen in the early stage of the same period of the disease.

Having seen so few cases of "syphilization," and these also so recently, I cannot, of course, express any opinion upon this point, derived from my own observation. Nor is this difficulty likely to be removed in the future, since, in a large city like this, it is only by chance if a patient can be traced after leaving one of our large hospitals. The same difficulty will exist in other places containing a large population, even supposing the interest in medicine to be sufficient to lead to a trial of this novel treatment, requiring, as it does, a more thorough acquaintance with venereal diseases than most physicians possess.

Prof. Boeck has spoken to me of the superior advantages possessed in a sparsely populated country like Norway to trace the origin, progress, and result of disease. The police regulations with regard to prostitution are equally strict as in Paris. The names of all the patients who have been treated by him in public practice are published in full, and the profession in general throughout the country is requested, in the interest of science, to send information to headquarters if any one of these patients applies for treatment, together with an account of his or her condition and symptoms.

Prof. Boeck's investigations as to "syphilization" have also met with severe criticism, not to say violent opposition, from some of his confrères. It is, probably, well for the cause of science that it has been so, since the observation of cases in a public hospital has thereby been rendered more exact, in a city where "syphilization" has, for years, excited greater interest in the medical profession than we, at this distance, can readily imagine.

Under these circumstances there is reason to believe, and the medical profession elsewhere has a right to expect, that the question of the permanent effect of this treatment will first be decided beyond doubt, and its merits be estimated in comparison with other means, in that city in which it has chiefly been tried, and where the advantages for observation are claimed to be so great.

It should be mentioned that the opposition excited in Christiania with regard to "syphilization" has led to an extensive trial of letting syphilitic cases alone, in other words, to what is called *an expectant plan of treatment*, and also to treatment by means of a succession of blisters, or plasters containing tartarized antimony, with the hope of proving that repeated inoculations were simply equivalent to no treatment at all, or that they acted only as derivatives; and it is claimed by a number at least of the colleagues of Prof. Boeck, that the results are nearly or quite as favourable —especially when the treatment by derivation is compared with that by syphilization.

I have before me the report of a discussion which took place on "syphilization," in the Medical Society of Christiania, at one of its sessions of 1869,[1] in which the general opinion expressed was still decidedly favourable to the method, although some of those present thought that the results were no better than those obtained by derivation.

For instance, Dr. Hjort, of the army, stated that "he had treated some cases with syphilization, and afterwards some with plasters, a method now generally known by the name of derivation; and the difference between the time required for syphilization and for derivation he thought too little to be of any moment. From the number of relapses it was also difficult to come to any conclusion as to which was to be preferred." Similar testimony was also given by others.

On the other hand, Dr. Bidenkap "still stuck to the opinion that syphilization was the best method of cure that he knew," and Prof. Voss and others made the same statement.

Theories as to the action of "Syphilization."—The early advocates of "syphilization," as Auzias-Turenne and Sperino, maintained that the syphilitic virus was absorbed from their successive inoculations, until finally the system became saturated, and refused to receive any more; further inoculations proved unsuccessful, and immunity was attained.

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[1] Nordiskt medicinskt Archiv, 2 Hft., 1869.

No authority of any note at present entertains this view of saturation, so far as I am aware, and we need not dwell upon it. Let us proceed to the opinions of the more recent advocates of the method.

I regret to say that, in the numerous conversations I have had with Prof. Boeck on this subject, his views have appeared to me vague, indefinite, and unsatisfactory; but, in justice to him, I am bound to say at the outset that he himself attaches little importance to his theories, and asks only that his facts be accepted. The opinions, however, of a man who has been the chief advocate of this method, and who has devoted many years of laborious, enthusiastic labour to its advancement, cannot be passed over in silence. I trust that, when these pages meet his eye, he will pardon the following condensed and imperfect summary of what I have gleaned in many pleasant hours of personal conversation.

Prof. Boeck says that he believes "syphilization" acts, and acts only, through the absorption of the virus inserted in the repeated inoculations.

I ask him for any proofs that absorption takes place.

Upon the first occasion of my putting this question, he adduced as an argument that the glands in the neighbourhood of the inoculations often become swollen and inflamed. This did not occur in a single instance at Charity Hospital, and, if it had, certainly no one would regard it as any evidence whatever of absorption into the general circulation!

Subsequently Prof. B. based his theory of absorption chiefly on the ground that after the inoculations had died out upon one part of the body, as the chest, the pustules resulting from inoculations afterwards commenced upon the thighs would be small.

I replied, that if this were due to the absorption of the virus, affecting the system at large, the inoculations ought not to take at all upon the thighs, as soon as they had ceased to affect the part first inoculated.

To this objection he, at the time, made no answer, but, just as these pages are going to press, Prof. B. has stated to me, as confirmatory of his view, that if, seven days after vaccination with the vaccine virus, a person be re-vaccinated in two places—upon the arm in the neighbourhood of the first inoculation, and also upon the thigh—the former will fail while the latter will succeed, although imperfectly. I have had no opportunity to put this to the test. But further—

I said to Prof. Boeck, "If you believe in absorption, you of course believe that the amount of the virus in the system is increased?"

To my surprise the answer was "No."

I inquired how it was possible that virus could constantly be added without an increase?

Prof. B. replied that he could not tell.

Now, this is a faithful summary of the conversations held by Prof. Boeck and myself upon this subject, and I submit to the reader whether or not the theory of absorption in the mind of Prof. Boeck is based upon anything more than a mere assumption.

In his published articles on "syphilization," Prof. Boeck says he believes that this process acts by "assisting nature in passing through a course which too often is but imperfectly accomplished through her forces alone."[1] This, it is needless to say, is no explanation of the *modus operandi*, although it looks very much like a belief in depurative action, from which, however, Prof. Boeck dissents.

For my own part, I cannot believe that there is any absorption whatever of the virus employed in "syphilization." How is it possible that syphilitic symptoms should vanish under the constant increase of the very cause to which they owe their existence? There is certainly no other known instance in pathology in which the addition to the system of a larger quantity of a virus producing a certain disease will cause the symptoms of that disease to abate.

Let us inquire also into the nature of the pustules and ulcerations produced by the inoculations. It makes no difference whence the virus was taken, the phenomena attending the success of these inoculations are always the same. *Pustules* appear in the course of forty-eight hours, or, in other words, *without incubation.* These pustules cover ulcers, with *sharply-cut edges*, a *purulent* secretion, and a *soft base.* The *secretion of these sores is readily auto-inoculable*, reproducing their like over and over again. Surely these are the characteristics of an affection which we call a "chancroid," and which we daily see in many persons, without the latter ever showing any evidence of the absorption of a virus.

But a more severe and a decisive test remains to be applied. If the virus employed in the "syphilization" of syphilitic subjects is absorbed, this same virus when inoculated upon a person who has never had syphilis, will even more readily enter the general circulation and produce its characteristic effects; since it is admitted by every one that one infection is a decided obstacle to a second.

Cases in which this test can be applied must necessarily be rare, since persons who have never had syphilis will seldom consent, and will seldom be subjected by others, to inoculations of this kind; instances, however, are not wanting, and, for the present, I shall confine myself to those furnished by the advocates of "syphilization" itself, or by those who have had the best opportunity to observe this process.

Danielssen, of Christiania, thought it might be possible by means of "syphilization" to effect such a change in the system of the miserable lepers of Norway, who are incurable by any other known means, that their condition might at least be relieved. For this purpose he selected six, who had never been infected with syphilis, and subjected them to successive inoculations of the same virus which is used in "syphilization" and which is supposed to act in consequence of its absorption. It would naturally be supposed that whether these lepers derived any benefit or not as regards their leprosy, they would at least have contracted syphilis. Not at all! No symptoms of this disease ever appeared in them, with one exception, and this was the case of an individual who had already passed through nearly four hundred inoculations with impunity, when fresh matter chanced to be taken directly from a true chancre. His previous four hundred inoculations proved no protection against syphilis, and the insertion of this virus was followed by a chancre and secondary symptoms.[1]

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[1] American Journ. of Syphilography and Dermatology, vol. i. p. 14.

But I am indebted to the kindness of Prof. Boeck for three other similar cases, which possess special value coming from this source. The cases occurred in the wards of Dr. Gjör, of Christiania, who gave a succinct account of them in a letter to his friend Prof. Boeck, a translation of which, made by Prof. B. himself, is now before me. Since the cases are similar, an abstract will serve for all.

Dr. Gjõr, as already mentioned, had succeeded after much difficulty in inoculating the secretion of mucous patches upon the persons bearing them, and, with matter thus obtained, was carrying on the process of "syphilization" in his wards. Under these circumstances, there could be no question that the virus originated in a syphilitic and not a chancroidal lesion. It so happened that there were three women, inmates of the ward, in which these inoculations were going on, who had never had syphilis and who were there for other and simple diseases. But imagining that if syphilization was good for others it would also be good for them, these three women, without the consent or knowledge of Dr. Gjör, inoculated themselves with the matter described taken from the other patients. The inoculations were successful so far as producing *pustules*, but no one of these three patients afterwards showed any symptoms of general syphilis, although kept under observation from six to eighteen months! No stronger evidence than this is necessary to prove that the virus inserted in the inoculations of "syphilization" is not absorbed.

Other views have been maintained on this subject. Some assert that "syphilization" is after all mere expectant treatment, and that the symptoms diminish and disappear under good diet and attention to the general health, in the same manner, whether inoculations are employed or not. From my own observations at Charity Hospital I am convinced that this is not the case. All of the cases there, in which mercury had not been used, certainly exhibited more marked improvement than would have occurred under mere hygienic measures.

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[1] Medico-Chirurgical Review, Jan. 1859, p. 98.

Another and more probable view is that "syphilization" has only an eliminative or depurative action. That agents of this kind do have a favourable effect in the control of syphilitic symptoms is a fact which has long been known, and such remedies enter in as important parts of a number of the older methods of treatment, as the sweating process which has been so much resorted to in Germany, the baths and large potations of water at various mineral springs, etc. More recently, also, since this subject has attracted attention, extensive trials of derivation have been made in Christiania and elsewhere by means of a succession of blisters, plasters containing tartarized antimony, etc., and the results attained by such treatment are claimed by many to be as favourable as those from "syphilization."

Without regarding the question as fully settled, my own opinion is decidedly inclined to this view, that "syphilization" acts only through the process of suppuration that it sets up, and that the immunity which is obtained is simply in accordance with the general law, that the skin will finally cease for a time to react under the repeated applications of any class of irritants.

Certain pathological points of very great interest are involved in this subject of "syphilization," but cannot now receive more than a passing notice.

The first that I would mention is the fact that the susceptibility to the action of the chancroidal virus varies in different persons, and also in the same person at different times.

As an example of the variation in different individuals, we have the small number of successful inoculations in the case of Moses Foult, above reported, compared with any of the other patients.

With reference to the variation in the same individuals at different times, my observation of the cases at Charity Hospital fully confirms Prof. Boeck's statement, that the intervention of any acute disease will for the time interfere with or entirely prevent the success of the inoculations. We had one very interesting case of this kind on the Island, at the Smallpox Hospital. The patient had been going through the process of "syphilization" at the German Hospital of this city, when he was attacked with variola, and was removed to Blackwell's Island. During the height of his intercurrent attack, all inoculations failed, but succeeded again as he began to improve.

It is not necessary for me to refer again to the failure of the inoculations made with one kind of matter, after a certain number have already been performed, and to the less perfect success of the subsequent introduction of a similar matter. As before intimated, this fact is not as novel as it might at first appear.

But there is a still more interesting question involved in the present subject: I refer to the alleged successful auto-inoculations of the secretion of true chancres, the artificial production in this manner of pustules and ulcers, which in their symptoms, course, and termination, fulfil all the conditions which we daily regard as sufficient to establish the existence of chancroids. I hope to consider this subject in a future paper, and can only say at present that if the facts as stated shall be confirmed by further observation and experiment, the theory of M. Clerc will be proved, viz: that the chancroid is a derivative of syphilis, due to the modification of the virus in consequence of being implanted upon a subject already infected. *Practically*, M. Clerc is a dualist, for although he admits the *possibility* of a chancroid reverting to syphilis, yet he states that he has never met with such an occurrence in his clinical experience. So that if his views, advanced, with very imperfect evidence, in 1854, about two years after the publication of Bassereau's work, should, strange to say, be found at this late day to be correct, the rules now recognized in the diagnosis, prognosis, and treatment of venereal diseases will remain unchanged.

Is "Syphilization" to be recommended for general adoption?—In the preceding pages I have said much in favour of this method of treatment, and I have endeavoured to give it its full credit. From what I have personally witnessed, and from the accounts of others, I believe that it is a very effective method for the treatment of syphilis. I cannot say that I am fully convinced of the very small number of relapses after "syphilization" alleged by its advocates; not that I for a moment doubt their honesty, but results so favourable as this should be confirmed by others less enthusiastic, and less interested, before demanding implicit belief. Should further examination and experiment show that only twelve or fourteen persons out of every hundred infected with syphilis and treated by repeated inoculations, ever exhibit any return of the disease, this method will have established very high claims in the treatment of syphilis, whenever circumstances will permit its being carried out, as it may be in our hospitals and other eleemosynary institutions.

But, judging from what I have seen of the practice, nothing less than a very strong probability, in case I myself had syphilis, that the disease, if left alone, or if treated by mercury, would terminate disastrously, could induce me to undergo the personal discomfort, and for the length of time, which I have witnessed in the patients at Charity Hospital.

This *debit* side of the account, I cannot believe, is fully appreciated by the advocates of "syphilization" in their enthusiasm for the *credit*. The former, in fact, is apparently not regarded by them as deserving of mention. Upon inquiry of Prof. Boeck, I am told that this plan of treatment is usually carried on without any interference with the patient's ordinary avocations; that the inconvenience is even so slight, that a husband or a wife who has gone astray and contracted syphilis, may undergo this series of repeated inoculations extending over a period of three or four months, and yet be able to pass off the resulting pustules and ulcerations, covering the chest, arms, and thighs, as common "boils!"

What I have seen of "syphilization," as practised by Prof. Boeck himself, would make it appear a less agreeable process than the above statement would imply. To be sure, the treatment was new at Charity Hospital, and the patients were probably aware of the fact and more or less suspicious. Yet they kept their beds during the greater part of the three or four months that the inoculations were going on, although they had every inducement to be up and out upon the grounds; and it often required all our powers of persuasion to lead them to consent to a continuance of the inoculations, so great was their discontent. Indeed, I never made a visit to the hospital without the fear that some of them had eloped, as actually happened in three instances. They represented that the soreness of the ulcerations was so great that they could scarcely endure the contact of the bedclothes, much less that of their daily dress, and the appearance of the sores corroborated their statement. I cannot well imagine how persons in their condition could have been about attending to their daily business. When they left the hospital they bore scars over the chest, arms, and thighs, which they will doubtless carry with them to their graves. Moreover, the serious tendency of an ulcer upon the thigh, in the case of Benner, to take on phagedenic action, shows that this practice is not devoid of danger. In short, I feel obliged to subscribe to the opinion expressed by Messrs. Lane and Gascoyen, that "syphilization is not a treatment which can be recommended for adoption."

ART. II.—*Orbital Aneurismal Disease, and Protrusion of the Eyeball from Venous Obstruction; with Remarks and Cases.* By THOMAS GEORGE MORTON, M. D., one of the Surgeons to the Pennsylvania Hospital, and Wills Ophthalmic Hospital, Philadelphia. Read before the Ophthalmological Society of Philadelphia, March, 1870. (With three wood-cuts.)

IN December, 1864, I ligated the common carotid for aneurism involving the right ophthalmic artery; and reported the case in a paper on Orbital Aneurisms published in this Journal for April, 1865, together with the statistics of the operations upon the carotid for this disease. Four cases of vascular disease of the orbit have since come under my notice, illustrating several varieties of orbital aneurism and vascular exophthalmos. In two of the cases the origin of the affection was traumatic, and in the other two anastomotic and congenital. The histories of these, with a brief review of my first case, now five years since the operation, and a few remarks upon the diagnosis and classification of these rare and interesting diseases may appear not unworthy of the attention of the Society.

It is well known that difficulties have arisen in effecting a diagnosis in regard to the nature of pulsating exophthalmia; and that errors have occurred after most carefully conducted examinations, and apparently convincing proofs of the disease being purely aneurismal. In Mr. Bowman's case the carotid was ligated for supposed aneurism of the orbit: death occurred on the eighteenth day. The arteries were found to be normal; while the ophthalmic vein, where it entered the cavernous sinus, was filled with a coagula. Mr. Hulke, in reporting the case, remarks:—

> "The internal carotid may have been partially compressed by the swollen walls of the cavernous sinus against the side of the body of the sphenoid bone, giving rise to the bruit. The plugging of the trunk of the ophthalmic vein . . . . accounts for the protrusion of the eyeball, and perhaps also for the pulsation. . . . . because each diastole of the ophthalmic artery must have been attended by a general momentary increase of the whole quantity of blood in the orbit, because its exit through the ophthalmic vein was cut off, and the resisting bony walls of the orbit could permit a distension in front only."—*Soelberg Wells*, p. 642, Philadelphia, 1869.

Mr. Travers' case[1] in 1809, described as "aneurism by anastomosis," is the first reported instance of aneurism of the orbit. It was probably a true aneurism, or a diffuse one following upon rupture of the former. Next is Mr. Dalrymple's[2] in 1813, which was very similar to Mr. Travers'; and this is also described as an "aneurism by anastomosis." Mr. Scott's[3] case, in 1834, was traumatic. The patient, a lad twelve years of age, fell into a ship's hold, striking his head; symptoms of concussion supervened, with extravasation of blood in the orbit and protrusion. The aperture in the vessel which permitted the blood to escape probably did not close, as further protrusion followed, with pulsation; the carotid was then tied with success. In 1829 Dr. Warren performed two similar operations, one with success, for aneurism of the orbit. Then Mr. Busk,[4] in 1839, describes a case of aneurismal tumour of the orbit, following injury; and believes that the cases of Travers and Dalrymple must have been instances of *true* aneurism. Dr. Dudley,[5] of Lexington, Ky., in 1839, tied the carotid successfully for true aneurism of the orbit. The operations of Jobert, Velpeau, Herpin, Petrequin, and Nunnelly follow; while successful cases of ligature in infants for congenital aneurismal disease of the orbit, anastomotic in character, are reported by Wood, Mott, and Walton. Van Buren, Curling, Syme, Bell, Buck, Lawrence, Hart, Nunnelly, Halstead, and Foot have each operated upon aneurisms of the orbit, or upon pulsating exophthalmia. In the last case that was reported by Williams, in 1867, Dr. Foot tied both carotids at intervals of thirty days for the relief of pulsating exophthalmia, and with perfect success. Mr. Nunnelly has reported no less than seven cases of orbital disease of a vascular nature, and he has proposed the term "*Vascular Protrusion.*" Two of these were traumatic, four spontaneous, and one due to cancer in the orbit, and cavernous sinus. Mr. Nunnelly believes that "in a great majority of such cases of protrusion of the eyeball there is no disease whatever in the orbit; the seat of it is most commonly intra-cranial. The protrusion of the eyeball is passive, and the other distressing symptoms are secondary, depending upon obstruction to the return of blood through the ophthalmic vein."[1] In the post-mortem examination in Mr. Guthrie's case,[2] which terminated fatally without operation, with symptoms similar to those of Travers and Dalrymple, *true* aneurisms the size of a large nut were found upon *each* ophthalmic artery; no distinct tumour could be felt in the orbit although the eye protruded almost beyond that cavity, with the hissing noise; vision was scarcely affected; the vena ophthalmica cerebralis was greatly enlarged and obstructed near where it passes through the foramen lacerum orbitale superius.

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[1] Med.-Chir. Trans., vol. ii. p. 1.

[2] Ibid., vol. vi. p. 111.

[3] Ibid., vol. xxii. p. 134.

[4] Ibid., vol. xxii. p. 124.

[5] Ibid., vol. xxxvii. p. 221.

True aneurism of the ophthalmic artery might at first produce only slight exophthalmos with bruit and pulsation, and with no very serious symptoms for perhaps a considerable period; yet with rapid growth or rupture of the sac, or if associated with venous obstruction, as probably would be the case, excessive protrusion, such as has been frequently described, would undoubtedly occur. Exophthalmos in some cases is doubtless due to the presence of the aneurismal tumour in the orbit, while in many cases the disease is post-orbital, as Mr. Nunnelly has stated, and the protrusion directly owing to venous obstruction. Case V. presents an interesting illustration of marked exophthalmos in each eye, but from different causes. Traumatic aneurismal disease is present in the right orbit with a comparatively slight protrusion; while excessive exophthalmos in the left eye is due simply to venous obstruction; pressure on the right carotid controlling the whirr and protrusion in the former, but pressure on the left side producing no effect upon either globe.

In true aneurism of the ophthalmic artery the bruit appears more prominent and positive during the diastole, with a momentary intermission; while in the cases of aneurism by anastomosis, which I have observed, the sound is continuous and vibratory, being of continued whirring character, although increased during diastole, occasionally quite feeble, and then resembles the sound produced when a large shell is held close to the ear.

Intra-cranial aneurisms, if situated near the sella-turcica would, as has been previously described, produce a bruit, and give rise to orbital protrusion from obstructing venous circulation.

Exophthalmos with bruit, and pulsation to a greater or less extent, may arise from several causes; while protrusion without the bruit may occur, as has long been recognized, simply from any cause interfering with the venous current. We may have vascular exophthalmos from—

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[1] Med.-Chir. Trans., vol. xlviii. p. 30.

[2] Guthrie, Operative Surgery of the Eye, 2d ed.

1. True aneurisms of the orbit.
2. Diffuse aneurisms of the orbit.
3. Aneurisms by anastomosis.
4. Obstructed venous circulation, intra or post-orbital.

1. True aneurisms of the ophthalmic artery in the orbit may, according to the size of the tumour, produce exophthalmos, pulsation, and bruit; while the presence of the aneurismal tumour may possibly be detected by the finger. With advance of the growth, come œdema, great protrusion of globe, pain, etc.; the pulsation and bruit being controlled by pressure on the carotid.

2. Diffuse aneurisms of the orbit, traumatic or consecutive, in which all the coats of the vessel, or the sac of a previous aneurism may have ruptured; or where the cellular tissue alone forms the sac. Symptoms are sudden: the patient often states having heard the report of a pistol or gun, immediately followed by an intense aneurismal whirr, thrill, and bruit, and pulsation of the globe, the protrusion gradually increasing. The whirr is synchronous with the diastole of the heart, with the momentary interruption. Gradual impairment of vision follows, and with the increase of the protrusion, loss of vision, and sloughing of the globe, and frequently intense pain. Pressure on the carotid controlling the bruit.

3. Aneurism by anastomosis.—In these cases the disease is generally congenital; and the orbit is often secondarily involved from the disease creeping in from integumentary nævi. The venous capillaries and trunks are affected by the extension of the disease, and the arterial network is also highly and morbidly developed. The face and scalp are so prone to this disease that we find more examples of this affection in these parts than all the rest of the body together; so that it is not surprising for the disease to involve the loose orbital tissues. Case III. (see Fig. 2) presents an unusually marked example of this disease, not only involving the orbit but the entire side of the face, and including the lower jaw and tongue; the protruded globe being forced outwards and downwards, and projected at least an inch. This affection may be limited to the orbit, and we should then have exophthalmos with or without pulsation and thrill, excessive or not, according to the development of the disease; but the latter symptom is *continuous* in character, and generally much less marked than in the two preceding forms. If there is an ill-defined tumour of varicose vessels this may be compressed and nearly emptied, filling up when pressure is removed. The disease advances gradually and often appears stationary after having attained considerable size: there is seldom pain, the patient being able to continue with ordinary work, and not experiencing any excessive cephalic noise. In case of free

communication with vessels from the opposite side, or when the growth advances from the orbit, a marked thrill is the result.

4. *a.* Vascular protrusion from venous obstruction.
   b. Exophthalmos with bruit and pulsation ; Graves's disease.

In the former the protrusion is due to distension of the orbital vessels from blocking up of the ophthalmic vein previous to its opening into the cavernous sinus, or to aneurism of the ophthalmic artery at its origin, or from any cause whereby the venous flow from the orbit is interfered with by tumour or otherwise. When the vein is obstructed, pressure being exerted upon the artery by the hardened vein, a bruit may be produced. In cases of aneurism of the ophthalmic artery previous to its entering the orbit, we would have symptoms of true aneurism ; but the protrusion would be passive from the obstruction of the venous circulation, yet the bruit would be, as above stated, as it is found in true aneurism. In vascular protrusion the vision is often more or less impaired, while occasionally after duration of years, vision has not been greatly interfered with or even destroyed. Venous dilatation alone forming a tumour in the orbital cavity may produce exophthalmos without bruit. An interesting case of this disease of several years' duration, is reported by Dr. De Ricci,[1] in which great protrusion occurred. In this case the globe was finally removed by Dr. Bowman to reach the tumour, which was then found to be composed of a mass of convolutions of veins dilated into sacculi.

Dr. Parrish, one of the former surgeons of the Wills Hospital, has also reported a case[2] of traumatic vascular tumour of the orbit, *without pulsation or bruit,* in which an attempt was made to remove the growth by ligature ; after three ineffectual efforts the treatment was abandoned, and at the last report the disease was progressing. It was thought in this case that the arteries and veins were alike involved. In Graves's disease or exophthalmic goitre, for instance, we may have protrusion of the eyeballs to such an extent that the lids cannot, by any effort of the patient, be brought together over the cornea, which may lose its transparency ; and vision, being consequently lost or greatly impaired, the eyeballs may finally become atrophic. Anæmia, with violent action of the heart, and gastric symptoms, usually accompany the bronchocele and exophthalmos. There is also a peculiar puffy condition of the eyelids similar to that observed after the administration of arsenic; and in the bronchocele there is frequently observed a distinct diastolic murmur. About a year ago I had under care a lady with this form of exophthalmos, excessive in character and associated with anæmia and bellows murmur, but no bronchocele; the globes were almost dislocated; the patient was presbyopic, but had no other difficulty with vision ; only slight improvement followed the administration of tonics and stimulants. In Graves's disease "the exophthalmos is due to hypertrophy of the adipose cellular tissue of the orbit, and to a hyperæmic swelling of this tissue."

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[1] Dublin Quart. Journal, 1865, Nov. p. 338.

[2] American Journal of Medical Sciences, p. 357, October, 1841.

> "It was supposed by some authors that the pressure of the enlarged thyroid upon the cervical bloodvessels caused the protrusion of the eye. In opposition to this view it may, however, be urged that we often meet with very large bronchoceles, without any exophthalmos, and, on the other hand, as has been shown by Prael, the latter may exist without any enlargement of the thyroid gland . . . . It is, however, far more probable that the affection is due to an irritation or neurosis of the sympathetic nerve, producing hypertrophy of the adipose tissue of the orbit and dilatation of the veins."—*Wells*, p. 621.

The involvement of the orbit by aneurismal tumours, true, false, or diffuse (spontaneous or traumatic), has been frequently observed; and for these the term aneurismal appears correct; while venous obstruction alone in many cases is the true cause of exophthalmos.

Treatment.—As but little can be expected from the internal administration of remedies, our attention must be directed either to the orbit or to the arrest of the circulation by pressure or ligation of the main artery in the neck. Electro-puncture was unsuccessfully tried by Petrequin in 1845. Injection of coagulating fluids into the orbital tumour has been followed by success in many cases; but it appears to be a dangerous operation unless the sac can be readily and certainly punctured.

Dr. H. D. Noyes, of New York,[1] reports six cases of cure. The injections consisted, in two instances of tannin; in one, of the acetate of iron; in three, of the sesquichloride of iron.

Compression of the carotid has been tried in very many cases, and several successful results of this treatment have been recorded, with, however, a preponderance of failures.

Gioppe, in 1856, employed compression intermittingly applied for four days with a complete success; he was followed by Scarramuzza in 1858, who used pressure for eighteen days intermittingly (7 hours and 20 minutes) with a like result; and again by Freeman in Canada. Five cases, three in England, one in France, and one in Poland, have since failed. In a recent case of pulsating exophthalmos with bruit, at the Wills Hospital, pressure was abandoned, after a most faithful trial. A large number of aneurisms and varices of the orbit have been subjected to ligation of the carotid, the success attendant upon this operation having been quite unusual. When there is danger of the eye being compromised, or even without this, when the disease is increasing, and compression has failed, ligation should be resorted to.

In excessive hypertrophy, with great protrusion, as in Case III., although not advancing, where there is great danger of immediate increase and possible hemorrhage, the carotid should be ligated. Even in suspected malignant disease, with exophthalmos, bruit, pain, disturbed vision, and rapid growth, ligation would be quite justifiable if not demanded. The disease would probably be temporarily arrested, and pain would be alleviated by the diminished congestion.

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[1] New York Medical Journal, March, 1869.

Of the 32 cases of all forms of orbital aneurism which I collated in 1865, 30 were subjected to ligation of the carotid artery. Three of these were partially successful, two were unsuccessful, three died, 22 were cured.

Dr. Noyes has tabulated in the *New York Medical Journal*, March, 1869, 45 cases of carotid ligation from all sources; of this number, three were partially successful, five were failures, five were followed by death, 32 were cured, showing equally fair results.

CASE I. *True Aneurism of the Ophthalmic Artery successfully treated by tying the Common Trunk of the Right Carotid.*—This operation was performed upon the patient before you (Mrs. P.) on the 4th of December, 1864. The earliest symptom of the aneurismal disease was observed during the month of May of the same year, when she was two months pregnant; her attention then was directed to a slight noise in the right temple, which gradually increased. In the early part of November, just before her confinement, she awoke in a fright from a sound sleep with what she supposed to be the report of a pistol; but was assured by her sister, who was with her at the time, that it was only a dream; from this time the noise became much more marked and distressing in character. The eye now began to protrude, the vessels about the orbit became prominent, and vision was somewhat involved. Some weeks after delivery, which was accomplished without any difficulty, I was consulted; the protrusion was very marked, and pulsation of the globe had become a very prominent symptom; the globe was pushed upwards and forwards; pupil dilated; convergent squint and double images; vision impaired; the vessels adjacent to the orbit were enormously distended and pulsated strongly. The thrill was distinctly aneurismal in character, with the momentary intermission, being similar to the puffing of a locomotive, to which the patient herself compared the noise. True aneurism of the ophthalmic artery in the orbit was diagnosticated, this being concurred in by my colleagues of the Pennsylvania Hospital, and others who saw the case. The carotid having been tied the ligature dropped on the 17th day; the wound closed up firmly, and on the 24th day vision was normal and all evidences of the original disease had vanished.

The patient has ever since continued well; there is no impairment of vision, and the fundus of each eye, is found to be normal. The patient has been again confined, in December, 1867, without experiencing any difficulty either prior to or after delivery. The right side of the patient's face is observed to be decidedly less full than the left; the tissues are apparently less nourished, and a slight atrophic state has resulted. Upon the left side of the face free perspiration occurs, while the right side exhibits quite the contrary condition.

The patient was exhibited to the society.

All the symptoms of true aneurismal disease were present in this case; and had ligation of the artery been delayed, the same excessive exophthalmos, with symptoms described in first recorded cases, would have undoubtedly occurred.

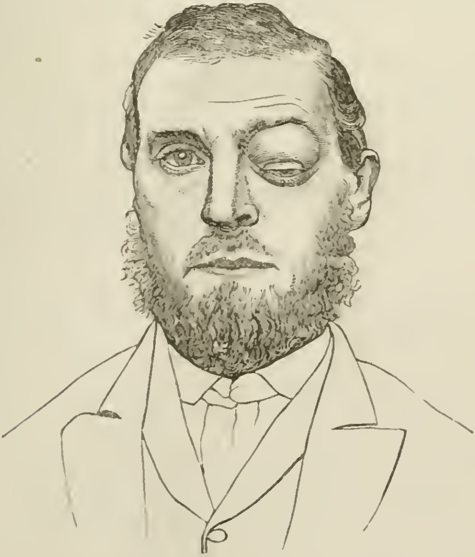
Case II. *Aneurism following a Blow upon the Brow; Orbital Tumour, Exophthalmos, Pulsation, and Bruit.*—J. L., æt. 25, native of Ireland, has been in this country since June last (1869), has always been healthy. Four years ago he received a blow with the end of a loaded whip, directly over the left eye; considerable ecchymosis resulted, the tissues in and about the orbit being much infiltrated; a month afterwards this infiltration had very much disappeared and no further trouble was experienced for some twelve months afterwards, when a slight swelling or lump appeared which could be grasped by the fingers. This tumour was soft and compressible; the growth advanced slowly during the next two years, the eye being gradually displaced downwards and outwards.

During the past year the growth has increased rapidly, having doubled in size within the last six months; he has also experienced for a long time a slight hissing or purring noise, more at night when lying in bed, or when at work in a stooping posture.

Vision has been gradually diminishing ever since the tumour began to develop, and the eye has been almost hidden from view.

Present Condition.—Exophthalmos strongly marked; a tumour above the eye extending backwards, soft, compressible; with some effort the globe can be forced partly within the orbit, the tumour diminishing, and with the removal of the pressure the growth slowly regains its size. There is a slight pulsation, with a feeble *bruit*. Pressure on the carotid does not entirely control the *whirr*. Left eye is projected forward and downward one inch; the globe above is flattened horizontally; the lower border of right iris is on a level with upper border of left; pupil active; external ciliary vessels engorged, especially over the lower and outer section.

Fig. 1.



Ophthalmoscopic Examination.—In the left eye the arteries are exceedingly minute; veins full and dilated; disk atrophied, and irregular; fundus pale. Right eye, fundus pale; disk slightly irregular; normal vision.

Left or diseased eye, $V = \frac{1}{100}$. Right eye, normal acuity of vision. Left side, bruit heard most distinctly over globe, and also slightly over globe of right side by transmission. Left eye projects forward with each pulsation.

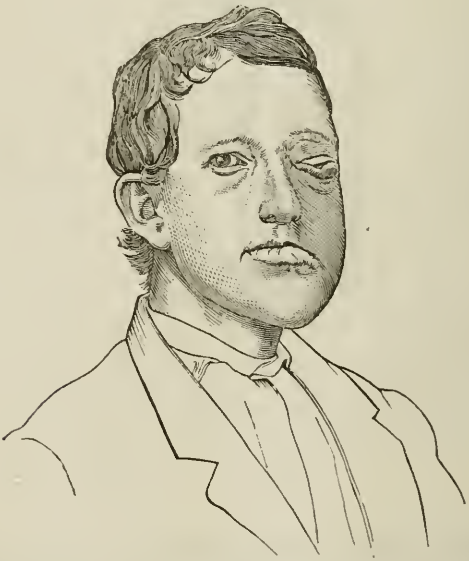
In this case some of the vessels of the orbit were ruptured, which accounted for the sudden and excessive effusion; absorption then occurred; the vessel or vessels, arterial and venous, which were ruptured, became dilated, and an aneurism by anastomosis has gradually developed; with slight bruit, pulsation, and thrill, forming a compressible, varicose tumour. In regard to operative interference, a partial removal of the tumour with the knife, and ligation of its deeper portion would probably be sufficient.

The patient was exhibited to the Society. Fig. 1.

CASE III. *Aneurism by Anastomosis, with Orbital Tumour; Involvement of the Entire Side of Head and Face by the Extension of the Disease.*—L. L., æt. 25, married, general health good. Soon after birth, the left side of his face was observed to be rather more fully developed than the right; as far back as he can remember the left eye has been prominent. Many years ago he noticed a rushing sound in his head and eye, which is more intense at times, the protrusion and noise being increased by heavy work or the stooping posture.

Present Condition.—The right eye is normal as regards vision and position. The left presents excessive exophthalmos; the conjunctiva is chemosed, highly vascular, and thrown into folds; the upper part of the cornea being on a line with the lower edge of the cornea of the sound eye

Fig. 2.



Intense pulsation and marked thrill are perceptible to the touch on the temple and eyeball, and the noise can be heard at some distance from the patient's head. A considerable tumour, irregular in shape, flattened above, can be felt deeply in the orbit and at the inner angle of the eye;

in this tumour the thrill is very marked and intense in character. The orbital portion of the tumour is globular, readily compressible, but with removal of constriction filling up instantly. Pressure applied to the carotid entirely controls the aneurismal thrill, quickly produces a marked diminution in the size of the tumour, and stops all pulsation. Left eye can count fingers with great difficulty at about one foot; all movement of this eyeball is lost; a marked continuous bruit can be traced in the vessels of the face, while the left side of the tongue is enormously hypertrophied; this varicose aneurismal condition invades the entire side of the head; the mucous membrane of the tongue and mouth is thrown into folds, while the opposite side is quite normal.

Pressure upon the left carotid controls all bruit and thrill with immediate lessening of the orbital tumour and exophthalmos. Ligation of that vessel has been advised as the affection is increasing, and the risks of hemorrhage are considerable.

The patient was exhibited to the Society. Fig. 2.

Case IV. *Aneurism by Anastomosis involving the Orbit at the Inner Angle.*—Miss P., æt. 12 years, although otherwise a healthy girl, has had a tumour growing gradually since infancy at the inner side of the right orbit. More recently it has been projecting beyond the angle, and forming a growth a little more than an inch in diameter. It is larger at times and more prominent under excitement. The pulsation is slight in the tumour, and sometimes can scarcely be felt. The child says she feels or hears a sound in her head all the time. The tumour can be forced by pressure almost away, after which it gradually refills; the exertion of going up stairs produces great prominence. The eye is not displaced nor is vision interfered with.

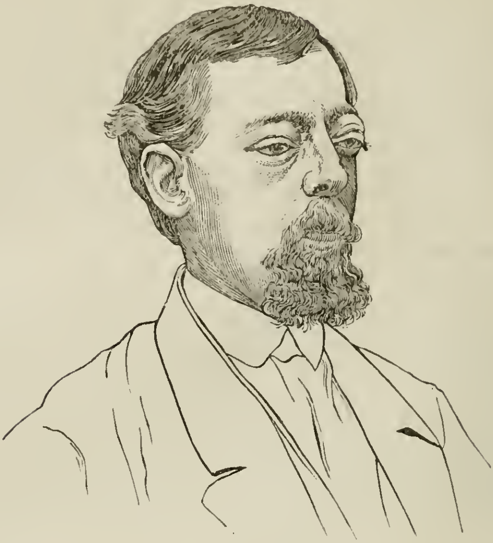
This case (photograph shown) is one of anastomotic aneurism. The slight pulsation, the subsidence of the tumour under pressure, the continued noise in the head, the absence of all very active symptoms, and the slow growth, with its congenital character, all indicate the nature of the affection. In this case, unless the disease is arrested in its early growing stage, there is every probability of its assuming a more serious character. Injections of coagulating fluid, excision of the tumour, or ligature, would probably prove successful.

Case V. *Traumatic Aneurism of the Right Orbit, associated with extreme Exophthalmos of the Left Eyeball, from Venous Obstruction.*—S. G., æt. 25, received a violent blow on the right side of the head, on the 20th of June, 1868. Immediate protrusion of the right eyeball followed, and the left became prominent eight weeks afterwards. A hissing sound was noticed in the right orbit, directly after the accident, perceptible only with each stroke of the pulse. When admitted into the Wills Hospital in August, 1869, both eyes presented exophthalmos (see Figure 3). The left globe was almost dislocated, but could be easily pressed back into the orbit, and readily held there; but when pressure was removed it immediately bulged out, but presented neither pulsation nor the slightest bruit.

The right eye pulsated strongly, and resisted pressure; there were intense thrill and bruit which could be controlled by pressure on the carotid of the same side, and under this pressure the globe could be placed almost in its normal position. Pressure on the left carotid produced no effect on either eye.

The case was diagnosticated as aneurism of right orbit, with vascular protrusion of the left, simply from venous obstruction, being thus an illustration of two forms of exophthalmos. Compression of the right carotid allowed the globe on that side to be replaced to a considerable extent, thus favouring the view that an intra-orbital tumour existed, which was partially, or entirely emptied, along with the cessation of all the aneurismal symptoms, when the arterial circulation was controlled.

Fig. 3.



Complete notes of this case, of which a mere abstract has been here given, were read before the Society. The detailed history will be found in the present number of the Journal in the report by Dr. Harlan, who had charge of the patient, and to whose paper the reader is referred.

ART. III.—*Case of Traumatic Aneurism of Orbit, treated by Compression.* By GEORGE C. HARLAN, M.D.

S. G., æt. 25, a brakesman on Pennsylvania Railroad, was admitted to the Wills Ophthalmic Hospital on the 14th of August, 1869. On the 20th of June, 1868, while standing on the platform of a car in motion, he received a violent blow upon the head from another car moving in the opposite direction on a side track, which fractured the lower maxilla on both sides and inflicted several scalp wounds. He stated that he was partially insensible for three weeks, and that when he returned to consciousness his right eye was very prominent and swollen, and that he heard "a roaring sound like falling water in his eye" with every stroke of the pulse, which he had never been free from since. A "red tumour" which had appeared on the right eye partly covering the pupil and interfering with vision, had been cut out by his medical attendant. A cicatrix in the conjunctiva at the inferior palpebral fold, proved the tumour to have been a chemosis. The left eye commenced to protrude in about two months.

He was able, in a few weeks after the recovery of consciousness, to resume his occupation, and had suffered no inconvenience beyond the deformity and the annoying sound which he referred very positively to the right eye.

At the time of his admission there was great exophthalmos of both eyes—greater of the left which seemed almost dislocated, the equator of the ball being in front of the edge of the orbit. The left ball could be pressed back to its proper position and easily held there without pain to the patient, but immediately bulged forward again when the pressure was removed. The right eye resisted pressure, its position could not be altered, and strong pressure gave pain. He had excellent binocular vision. In the right eye $V = \frac{20}{30}$, in the left $\frac{20}{20}$—accommodation in each $= \frac{1}{5}$. Pupils freely movable and ophthalmoscopic appearances normal. In addition to the "sound in the eye" referred to, he felt every arterial pulsation "like a little jerk all over his head," and coincidentally there was a slight apparent motion of any object that he looked at steadily. On auscultation, a loud aneurismal murmur could be heard over any part of the head or face, most distinctly over the right temple. This murmur, as well as the sound heard by the patient, was entirely stopped by pressure upon the right carotid, and there was perceptible pulsation of the right ball, with slight darting pain, when the pressure was suddenly removed; never any pulsation of the left ball. During the pressure on the artery the right ball could be pressed back. No effort was produced upon either eye by pressure upon the left carotid, or upon the left eye by pressure upon either artery.

On consultation of the surgeons of the hospital, it was decided to give a thorough trial to treatment by compression of the carotid, as the pulse was full and strong, and excited by prolonged examinations and the prospect of surgical treatment—beating at the rate of nearly 100 per minute—tinct. veratrum viride was given several hours before compression was commenced, and repeated at intervals. The resident surgeon, Dr. James C. Wilson, assisted by Mr. Landis, an advanced student of medicine, and the patient himself, who was an intelligent man of unusual endurance and indomitable perseverance, kept up continuous and complete compression from 3 P.M. until 11 P.M.—a period of eight hours—the pulse ranging in the mean time, under the influence of the veratria, from 44 to 56.

The murmur though still perfectly distinct, was much lower in tone and altered in character. The patient stated that the "roaring sensation was fainter and had a shriller sound. After this, intermittent pressure was applied from four to six hours daily, principally by the patient himself, who learned to control the artery better than any one else; he accomplished it sometimes by the thumb, sometimes by a tourniquet I had made by Mr. Kolbe for the purpose, and which acted very well for an hour or two at a time, and sometimes by means of a contrivance of his own, consisting of a stick about a foot long with the end properly shaped and padded, which he pressed against the artery and held in his hands or rested against a table. The improvement in the sound continued, and the exophthalmos was decidedly diminished, particularly of the left eye, making an evident change for the better in the patient's appearance.

This treatment was continued for five weeks, during the last two of which no progress was made. Rather for the sake of confirming the assurance that all had been done that could possibly be accomplished by pressure, than with any decided hope of further improvement, continuous pressure was tried, being kept up by relays of students for twenty-four hours, but with scarcely any effect. The patient then left the hospital, expressing himself satisfied that the degree of improvement attained fully compensated him for all he had endured. A few weeks ago he wrote to me to say that he had resumed his occupation as brakesman, and that the former condition of his eyes had returned, that he was no better than when he entered the hospital. He will probably return to undergo the operation of ligation of the carotid.

Art. IV.—*Form of Neuralgia of the Jaw-Bones, hitherto undescribed.* By S. D. Gross, M. D., Professor of Surgery in the Jefferson Medical College of Philadelphia. (With a wood-cut.)

There is a form of neuralgia of the jaw-bones, which, as far as my information extends, has not hitherto been described, though, judging from the great suffering which attends it, it has doubtless been observed by other practitioners. Its seat is in the remnants of the alveolar process of edentulous persons, or in the alveolar structure, and in the overlying gum, and is met with chiefly, if not exclusively, in elderly subjects. It is also more common in the upper than in the lower jaw. The part affected is usually very small, often not exceeding a few lines in extent. The soft tissues around do not seem to suffer, at least not in the same degree, as is so frequently the case in the more ordinary forms of neuralgia of the jaws and face. On the contrary, the morbid action is generally limited to the osseous structure. In rare instances there may possibly be some involvement of the gum, which is nearly always exceedingly hard and dense, grating more or less under the knife, and adhering with extraordinary firmness to the atrophied alveolar process beneath.

The pain is generally paroxysmal, coming on in fits and starts, very much as in ordinary neuralgia, the slightest causes being sufficient to provoke it, as talking, mastication, the contact of hot or cold fluids, deglutition, or mental excitement. Sometimes it is momentary, coming and going with the rapidity of lightning; occasionally it lasts for hours together, and cases occur, although they are rare, in which it continues, with but little mitigation, for an indefinite period. The pain varies in character. Thus, it may be sharp and darting, dull, heavy, aching, boring, or gnawing. Pressure generally relieves rather than aggravates it. Now and then, when it is uncommonly severe, there may be more or less spasm of the muscles of the face, but this is rare.

The pathology of the affection seems to be compression of the minute nerves distributed through the wasted alveolar process, dependent upon the encroachment of osseous matter upon the walls of the canals in which they are naturally inclosed. In the natural state the nervous current passes along without any hindrance, but in this condition of the canals in question its transmission is interrupted, and more or less pain, known as neuralgic, is the consequence. That this explanation is true does not, I think, admit of the slightest doubt. The osseous structure, as previously stated, is always abnormally hard from the deposit of new substance which imparts to it almost an ivory-like consistence.

The disease usually comes on gradually, and proceeds from bad to worse, until, in many cases, the suffering is rendered nearly intolerable. The general health, at first unaffected, is eventually materially impaired; the appetite is deranged; the countenance wears an anxious expression; the sleep is disturbed and unrefreshing; the bowels are habitually constipated; digestion is imperfectly performed; the extremities are almost constantly cold, and there is terrible depression of spirits. Loss of sleep, fatigue, exposure to cold, irregularity of diet, mental distress, and, in short, whatever has a tendency to lower the vital powers is sure to aggravate the pain and to prolong the paroxysms. Sometimes the disease would seem to be of a malarious origin, the attacks coming on periodically very much as in intermittent fever.

The subjoined cases will serve more fully to illustrate the nature of this affection, as well as to suggest the proper treatment for its relief.

Case I.—W. D. H., æt. 64, had all his upper teeth extracted eighteen years ago, and wore a plate with comfort for fifteen years; but three years since, previous to which time he had always enjoyed excellent health, he felt a sharp, cutting pain dart through the alveolar process of the left upper jaw, which was, however, confined to the portion posterior to the situation of the second bicuspid socket. From this date he was subject to excruciating paroxysms of pain which lasted from one to five minutes, and were always excited by movements of the mouth, as in speaking or eating. These attacks lasted for a week or ten days, when relief occurred for a similar period; but, although there were intervals of freedom from these paroxysms, yet he always experienced a dull, unpleasant pain in the affected parts, which were not, however, sensitive to the touch, nor did they present any signs of inflammation. The frequency and violence of the paroxysms were generally somewhat lessened by the exhibition of large doses of quinia.

On the 16th of September, 1869, I carried an incision along the alveolar ridge as far forwards as the second bicuspid socket, which enabled me to turn aside the soft parts, including the periosteum, and to remove, by means of the cutting pliers and the gouge, the affected bone to a level with the palatine process. There was no evidence of disease either in the bone or in the soft parts.

Mr. H. called upon me six months after the operation, from the effects of which, as he informed me, he rapidly recovered. He has not had any severe paroxysms of pain since, and his health never was better.

Case II.—J. McN., a labouring man, æt. 57, presented himself at the clinic of the Jefferson Medical College, September 22d, 1869, on account of neuralgia of the right upper alveolar process, which was edentulous, the teeth having been extracted forty years ago. In the autumn of 1862, while on a sea voyage, he contracted a severe cold, and suffered from his first neuralgic attack, which involved the alveolar process from its posterior limit as far forward as the situation of the first bicuspid socket. Since that time he has been the subject of intermittent paroxysms of excruciating pain, during the existence of which the mastication of the softest food, or the mere act of swallowing, was attended with an increase of the suffering, while rough handling and the mastication of the hardest articles of food could be borne with impunity during the absence of the paroxysms.

The affected parts were freely removed by an operation similar to that described in the preceding case. The gum was tuberculated and very firmly attached to the adjacent bone, which was of unusually dense consistence. Entire freedom from suffering up to the present time, April 27th, 1870, has followed the operation.

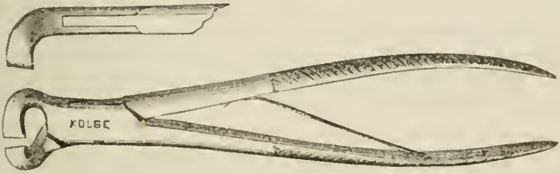
Case III.—A lady, nearly seventy years of age, a patient of Dr. Nordman, of this city, had suffered for a number of years with severe pain of the left upper jaw, involving hardly three-quarters of an inch of the alveolar process. The cuspid and the two small grinders had been extracted long ago, the gap in the bone left by their removal being much atrophied. The paroxysms of pain were frequent and severe, and had effectually resisted a great variety of remedies employed for their relief. The health was a good deal impaired; the body was very susceptible to cold; the countenance had a woe-begone expression, and there was great mental depression. Excision of the remnant of the alveolar process put a speedy stop to the disease; and, with the aid of a mild tonic, the woman soon regained her former health.

Case IV.—A lady, upwards of eighty years of age, had always enjoyed excellent health, with the exception of an occasional attack of asthma, and, latterly, of a severe neuralgic affection of the left upper jaw, in the situation of the three large grinders, which had been extracted upwards of fifteen years previously. The pain was generally of a dull, aching, or gnawing character, but at times it was sharp and shooting, and exceedingly distressing, having of late left her very little sleep or comfort of any kind. She was habitually peevish and fretful, and often expressed a desire to die, so great was her suffering. Some tenderness existed at the seat of the disease, but the neighbouring parts were apparently free from involvement. All the remaining teeth on that side were sound. Excision of the alveolar process was attended with a good deal of bleeding, coming on some hours after the operation, but the pain was at once relieved, and never returned.

Case V.—A widow, æt. 33, consulted me last summer on account of a neuralgic affection of the left side of the lower jaw, under which she had laboured for upwards of three years, her sufferings having at times been extremely severe. The pain was greatest at the side of the two small and first large grinders, which had been extracted several years before on account of caries. It commonly came on in paroxysms, of variable duration, their violence being always aggravated by eating and talking, by disorder of the menstrual function and by damp states of the atmosphere. The general health was good, but the lady was habitually nervous, and much depressed in spirits. The appetite of late had been considerably impaired. The gum at the edentulous gap was often tender to the touch; pressure with the finger usually provoked a severe fit of neuralgia. Various remedies had been fruitlessly employed. The treatment, after the case fell into my hands, was the same as in the other patients. The pain at once disappeared, and has never returned.

The first of these cases occurred upwards of ten years ago. A number of similar examples have fallen under my observation, but as they offer nothing of special interest it is unnecessary to describe them. From all that I know of this complaint, I am free to believe that the only effectual remedy is excision of the affected alveolar process. No particular attention need be bestowed upon the after-treatment. A mild course of chalybeate tonics may be required when the patient is anæmic, or affected with flatulence and indigestion.

The annexed cut affords a good illustration of a pair of forceps, made at my suggestion by Mr. Kolbe, for the removal of the alveolar process when affected with this painful disease.



Art. V.—*On a Rare Disease of the Joints.* By Samuel Jackson, M. D., Emeritus Professor of the Institutes of Medicine in the University of Pennsylvania, &c. &c.

Several cases of a rare form of disease resembling rheumatoid arthritis, if they be not uncommon examples of that affection, have fallen under my observation in the course of my practice, an account of which may prove interesting to the profession. The peculiarity of the affection, as seen in these cases, is, that it is confined to a single tissue—the ligamentous—whilst the general health of the patient is not at all disturbed. I have not been able to find any similar form of the disease described, and when in London I consulted Sir Benjamin Brodie in regard to it, who confessed that it was entirely new to him.

The first case I met with was that of a gentleman residing in this city. At the time I heard of it he had been suffering for some years, and I called to ask his permission to examine his disease, which was readily granted.

The affection was of one of the joints of the wrist and hand, all of the bones of which were dislocated; at every attempt to move the hand the joint was moved, but in no determinate direction, the members lying loose. The gentleman was dressed daily, and I was therefore unable to make a close examination, but I believe all of the joints were similarly diseased, though as it occurred soon after my graduation, I made but a superficial examination. He appeared to be in good health, was not emaciated, and his nutrition was apparently perfect. I made occasional inquiries, and found that the case was protracted for years.

The second case was that of a lady residing in the interior of this State whose wrists, when she consulted me, were dislocated at every movement. The late Prof. Horner, at my request, accompanied me in a visit to her, and after a careful examination we were both convinced that the cartilage had disappeared, and that the bones had been worn smooth by friction upon themselves. The patient attributed her sufferings to a cold contracted in sweeping snow from the piazza of her house, and had then, at the date of my first seeing her, been under treatment for over a year without deriving any benefit from it. Her disease gradually progressed for three years, when she died of a pulmonary affection.

The third case occurred in a lady of this city whom I found confined to bed, with every joint dislocated and stiffened. Her general health was unimpaired; she was entirely free from any disease save that in the joints, and she enjoyed an entire immunity from suffering except on any attempt at motion. She finally perished from a fever after having been incapable of any motion for years.

The fourth case was also that of a lady of this city, who sent for me on account of an acute pain in her wrist. The lady was of a fine constitution and a good liver, and I at first regarded the affection as gout, but from there being no alleviation resulting from the treatment which usually controls that disease for a certain time, and as the pain extended up the arm to the shoulder, and finally to the back of the neck, where it seated itself beyond the control of all the remedies employed against it, I came to the conclusion that it was another one of the cases of this form of disease, and gave up her case. The disease has continued slowly to progress until, at the present time, all of her joints are affected and she can barely move.

About October, 1853, I was called to see a married lady in a family I attended, who had just returned from their country seat. She supposed herself to be labouring under a rheumatism in the right knee, which had come on in the middle of the summer. Upon making an examination, I found that the knee was considerably enlarged, and the seat of a very severe and constant pain. I also ascertained that the right ankle was also affected in the same manner, and that the wrists were becoming stiff and painful. The patient was otherwise in excellent health. I thought I recognized it as belonging to this form of joint affection, and instituted a very active course of treatment, which appeared to retard the progress of the complaint, though it did not arrest it. Finding the case obstinate, and regarding it as a rheumatism, I advised the lady to go to Havana to spend a winter there. She also visited a spring of great repute at the southern extremity of Cuba, but without obtaining any relief. From there she went to Key West, and after her residence there, visited Charleston, where she was under treatment. She then returned to this city, where she remained till late in the year 1863, when she sailed for Brazil, whence she returned in the following year. During all this time the disease gradually progressed, stiffening the joints until she became incapable of motion, and had to be always carried about, fed like a child, and waited upon as one incapable of any exertion, no matter how small, or of what nature. And yet her general health is perfect and has always been so; her organic functions are unimpaired, and her spirits not affected. She has been for some years in this condition without a prospect of improvement.

The sixth case presented itself in a young lady who lived here. The disease had progressed so far as to stiffen her ankle and knee-joints and prevent her walking, when I ordered the use of Penny's bath. She had not taken many when she removed to the country, and, by my advice, lived upon a milk diet. After some time she returned to the city, and, to my great surprise, was able to walk to see me, a distance of several squares from her residence. She remained free from any symptoms of this disease for three years, when she returned to the country and relapsed. I do not know her condition at this time.

When visiting a family I was requested to see the wife of a gentleman residing in Germantown, who was on a visit there. At the time she consulted me I found that the knee-joint was stiffened and enlarged, and the wrist becoming painful. The ankle-joint was also threatened. I saw at once that I could not benefit her, and, though her family were very desirous I should attend her, my health was too feeble to undergo the fatigue of visiting her at such a distance. I saw her on but that one occasion, though I understood that her disease continued to advance. She went under hydropathic treatment, which did not afford any relief, and died in a few years.

The last case was a young English lady, who was brought to my notice by one of the graduates of the course of 1863. She was then in the last stage of the disease. I saw her lying upon a couch to which she was removed from her bed every day. In lifting her, great care was taken to prevent a dislocation of the hip-joint. All of the joints of her hands were displaced. She was suffering great pain, and was so much reduced that it was evident she was approaching the termination of her sufferings. She died in about ten days after my visit. I endeavoured to obtain an inspection of some one of the joints, but the family obstinately refused.

ART. VI.—*On the Coincidence of Certain Nervous Symptoms with the Presence of an Excess of Urea in the Urine.* By F. A. BURRALL, M. D., of New York City.

IN this paper are narrated a few cases which have fallen under my own observation in which a peculiar variety of nervous symptoms was accompanied by a marked excess of urea in the urine. To these are added some extracts upon the same subject, which have as yet been imperfectly elaborated, and further, certain considerations upon the etiology and treatment of the disease.

The following case is from my note-book December 21, 1868. Having been struck with the relation which uric acid and the urates bear to a large number of diseases, I had made notes of this and other similar cases, with a view, if possible, of grouping those affections in which a uric acid diathesis seemed to exist.

CASE I.—The patient was a middle-aged gentleman of sanguine temperament who had for some time been suffering from various disagreeable nervous symptoms, such as depression of spirits, excessive irritability, tinnitus aurium, and general malaise. His appearance was that of average health. There was an antecedent history of gout, though in a distant relative (mother's uncle), and the patient was what is termed a meat-eater. The appetite was not excessive, there was a marked tendency to acidity, and the bowels were regular. Cold bathing could not be borne; in fact the patient was very susceptible to cold, and perspired with difficulty. He suffered occasionally from pain in the lumbar region. His nervous symptoms were so severe as to render him at times very miserable. He had been in the habit, so common with many men of business in New York, of hastily drinking spirits, or malt liquor, several times during the day. This custom seems to prevail in this city partly as a habit, and partly to brace up a weary system for the excessive strain which is peculiar to the activity of business life in New York. An examination of the night and morning urine mixed, showed it to be sherry-coloured, slightly cloudy, acid, and having a specific gravity of 1030. There was no deposit on boiling. Half a drachm of pure nitric acid was placed in a watch glass with a drachm of urine, not concentrated or evaporated, when a copious deposit of nitrate of urea soon appeared. A similar change was also observed under the microscope when a drop of nitric acid was added to urine on the slide. The deposit in the watch glass gave the urine the appearance of being partially frozen. The patient was not in the habit of passing an unusual quantity of water.

The treatment was commenced by a discontinuance of stimulants and the use of the "Vichy with lithia" water. Three grains of bicarbonate of soda and a grain of ipecac were ordered to be taken at bedtime every other night, and a pill containing a grain of sulphate of quinia, one-fifth of a grain of ext. of nux vomica, and one-half of a grain of sulphate of iron, to be taken three times daily.

January 5, 1869. Patient feels much better. The deposit in the urine on a recent examination was found to be less. Ordered to stop pills and powders and continue the Vichy water. The pill was intended as a substitute for stimulants.

13*th*. Patient complained of a "swollen" feeling in his head, although his general health was improved. He stated afterwards that he derived much benefit from a pill of valerianate of quinia combined with quinoidia which I then gave him.

March 4. General health has continued to improve, disposition and spirits seem much changed, and the tinnitus has disappeared.

25*th*. A few days since patient, who had been feeling well previously, ate veal and lobster salad at dinner. He was at this time under some mental anxiety. Next day he suffered from a great pain over the sacrum and a sensation at the vertex described as a "jerking pain" which was also felt in the left eyebrow; these sensations were accompanied by intense misery, for this language is not too strong to use in describing the mental condition. On coming to my office he brought a bottle of urine passed March

23. This specimen contained a copious deposit (urates) which disappeared on boiling. At this time his visits were discontinued.

CASE II.—A merchant 45 years old had for two years been suffering from uneasy sensations in the head, resembling vertigo and described as a feeling of heat at the nape of the neck followed by a sensation as of a wave passing up on the head and producing a sense of insecurity and fear of apoplexy. His temperament was a mixture of the bilious and nervous. Tongue was furred, but although the patient had a habit of eructating he was not conscious of suffering from dyspepsia. He was a moderate eater, did not drink to excess, but occasionally took a glass of whiskey before retiring. He was easily chilled and liable to tremble or shiver when in the cold air. He slept badly, was much depressed in spirits, and feared either mental derangement or apoplexy. There had been occasional attacks of what, from his description, seemed to be muscular rheumatism. The amount of urine passed daily was from one to three pints, which was frothy when discharged. An examination of the night and morning urine mixed, showed it to be sherry-coloured, acid, with a specific gravity of 1030, and containing a thick whitish cloud which disappeared on the application of heat. The microscope revealed an abundance of urates in the form of very minute round bodies. On pouring some of the urine, which had neither been concentrated nor evaporated, into a watch-glass, and adding pure nitric acid in the proportion of one of the acid to about two of the urine, nitrate of urea soon appeared in abundance. There was no sugar visible in another specimen of the urine submitted to Trommer's test. Patient was ordered to be careful in his diet, and a mixture prescribed of bromide and iodide of potassium to be taken three times daily. It should be added that the use of stimulants was not interdicted, but a recommendation was made that the quantity should be lessened.

Nov. 27. Patient sleeps well. He has had scarcely any unpleasant symptoms. An examination of the urine showed it to be acid, and with a specific gravity of 1024. There was a slight cloud on boiling, which disappeared on the addition of nitric acid. Under the microscope were seen only a few epithelial and mucus cells.

Dec. 1. Had a return of some of his "head symptoms" two days since, which seemed to have been produced by mental anxiety. An examination of the urine passed this morning for urea showed a deposit of crystals round the edge of the watch-glass, but somewhat less than on the previous examination. Urine was sherry coloured, and had a specific gravity of 1024.

4th. Has not suffered from uneasy sensations in his head, but does not sleep well. He was ordered to continue the mixture previously used, and to take every other night a pill containing calomel, ipecac, aloes, and extract of colchicum, each a grain.

Jan. 5. Pill acted very freely, and patient was directed to diminish the dose one half, as there were no clear indications for the use of purgatives. He was also ordered to continue the mixture as before. He has given up stimulants, and has no head symptoms.

11th. Urine of night and morning mixed, has a specific gravity of 1020, and is of a paler hue. It contains a cloud which disappears on the addition of heat. When mixed with nitric acid in a watch-glass in the proportion of one of acid to three of urine and allowed to stand, only two small points of crystallization appeared after it had stood for an hour. Patient is greatly improved in health and spirits.

CASE III.—In October, 1868, I was consulted by a gentleman about fifty years old, who had long been subject to acidity, and suffered from what he supposed to be (that extremely vague disease) biliousness. He had not suffered from neuralgia or rheumatism, but took cold easily, and if he committed any errors of diet when suffering from a cold, was liable to violent and sudden colic. He had occasional attacks of vertigo, did not sleep well, and frequently experienced extreme depression of spirits, which sometimes made him fear mental derangement. Circulation languid, flatulence often present, and the stools small and rather dark. At that time the case seemed to me to be one of chronic dyspepsia, and he derived some benefit from the use of bicarbonate of soda. Recently an opportunity offered of making an examination of his urine, which I did, informing him previously that I expected to find the condition which is the subject of this essay. The urine examined was that of night and morning mixed, and the quantity passed during the twenty-four hours was about a quart. There was no pain in micturition. The specimen was dark sherry coloured, with a well-marked urinous odour; acid, had a specific gravity of 1030, and a cloud appeared on the application of heat, which disappeared by adding a drop or two of nitric acid. Trommer's test gave no reaction of sugar. On testing for urea, as in other specimens, with one-third part of nitric acid, the crystals of nitrate of urea began to appear in ten minutes, and in half an hour were abundant. It should be stated that stimulants did not agree with this patient, and he was quite a moderate liver.

A short time since I informed my friend, Dr. Farnham, of this city, concerning this class of cases, and on calling at his office subsequently he showed me a copious deposit of nitrate of urea from a patient labouring under intense nervous depression. This patient also slept badly. He was not addicted either to smoking or drinking. The urine was frothy, with a strongly urinous odour, of a high amber colour, with a specific gravity of 1025.5, and holding a slight mucous cloud. There was no albumen and no sugar with Trommer's test.

The literature of this subject is scanty. The observations in this essay are, I believe, the first which have been reported by an American physician. In Roberts on "Urinary and Renal Diseases," page 92, it is stated :—

> "Dr. Prout believed that there existed a peculiar morbid state characterized by an absolute and relative increase of the excretion of urea, unaccompanied by pyrexia. To this condition Dr. Willis, who adopted the view of Prout, gave the name of *azoturia*. The subjects of this form of disease, according to Prout, had usually a frequent and urgent desire to pass water, both by night and day.[1] This seemed principally due to an irritable sensation referred to the neck of the bladder, occasionally extending along the urethra, but in some cases it was due, at least in part, to real diuresis. In almost every instance the quantity of urine voided in the twenty-four hours was somewhat above the natural standard. The quantity was also particularly liable to be increased by causes which would scarcely affect a person in perfect health, at least to the same degree; such as by a chilly state, mental emotion or excitement, etc.[2]

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[1] Not observed in the cases reported in this Essay.

[2] Prout: Stomach and Renal Diseases, fifth edition, p. 97.

"In addition to the direct urinary symptoms there was sometimes a sense of weight or dull pain in the back, accompanied by disinclination to bodily exertion; there was no remarkable thirst nor craving for food, nor emaciation. Moreover, the functions of the skin appeared to be little deranged.

"Such is a summary of the description of Prout. He does not supply any details as to the daily flow of urine nor the daily amount of urea. At the time Prout wrote, very little was known as to the natural (physiological) variations in the excretion of urea, and the opinion he held as to urea being chiefly the final product of the metamorphosis of the gelatinous tissues, has since been proved to be erroneous. Looking at the question from the standing point of the physiological doctrines now in the ascendant, it is difficult to admit the existence of a condition characterized by the incompatible coincidences of an increased excretion of urea with absence of thirst, absence of excessive feeding, and absence of emaciation.

"Precise facts in support of Prout's view are wanting. Willis' description is too loose to give much confidence, and subsequent writers have contented themselves with a reference to Prout and Willis."

Farther on Dr. Roberts adds:—

"Nevertheless, some facts, rarely observed, have left an impression on my mind that Prout's description is not altogether fanciful."

Beale writes:—

"Lehmann, I think, states that he had not seen a case in which crystals of nitrate of urea were thrown down upon the addition of nitric acid without previous concentration."[1]

Beale also says:—

"There are some peculiar and very uncommon cases in which the urine contains this excess of urea; and at the same time more than the healthy amount is excreted in twenty-four hours. The patient is weak and grows thin in spite of taking a considerable quantity of the most nutritious food. He feels languid, and indisposed to take active exercise. In some cases digestion is impaired; in others, the patient eats well, experiences no pain or uneasiness after food, and perhaps has a good appetite. Sometimes there is lumbar pain. It would seem that most of the substances taken as nutrient material become rapidly converted into urea, and are excreted in that form. The waste of the tissues is not properly repaired, and the patient gets very thin. To refer these symptoms to the existence of a particular diathesis affords no explanation of the facts. The pathology of these remarkable cases has not yet been satisfactorily investigated."[2]

It is evident that the observations of those writers who have in late years given especial attention to urinary deposits are incomplete with regard to this subject, and an interesting field seems open for study.

In the *Medico-Chirurgical Transactions for* 1868 (vol. li.)[3] is a masterly article on this subject by Dr. Henry William Fuller, physician to St. George's Hospital. It is not necessary to add that anything from his pen is entitled to careful consideration. He states that within the last two years he has detected urea in excess in twenty-seven cases, "and so well marked and peculiar are the symptoms by which that condition of the urine is accompanied," says he, "that now, if the features of the patient's malady induce me to suspect its existence and to examine the urine with a view to its discovery, I am seldom disappointed in obtaining the characteristic crystals of nitrate of urea."

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[1] Kidney Diseases and Urinary Deposits, page 186. [2] Page 187.

[3] See also No. of this Journal for April, 1868, p. 533.

In another part of the article he writes :—

> "All the instances which have come under my notice have had several features in common. With one exception, that of a lady aged 43, the patients have all been males, varying in age from 23 to 54. Most of them have been essentially meat eaters, partaking sparingly of bread and other varieties of farinaceous food, but five of them ate meat only twice daily, and one, a member of our own profession, declared, not only that he never touched meat except at dinner, but that even then the principal part of his meal consisted of vegetable and farinaceous food. Without exception the patients have been tolerably healthy in appearance, and often somewhat florid, though in some instances they have lost flesh slightly; indeed their aspect has been so little indicative of disease, and their complaint of suffering has been so urgent, that any practitioner who did not examine the urine for urea would have surely regarded them as simply hypochondriacal. Usually the pulse has been quick and rather weak, and the patient's complaint has been of languor, flatulence, restlessness at night, and extreme nervousness. They have been afraid of encountering the rubs of every day life, and in some instances have for the time lost their pleasure in society; they have eaten fairly, though with less than their usual relish, and the feeling of languor which has oppressed them, and of fatigue which has followed even a moderate amount of exertion, has led to their abstaining almost wholly from exercise. They have usually complained of extreme depression in the morning, with a sense of heat about the eyes, muzziness in the head, and weariness after breakfast—feelings which have in some measure passed off as the day has advanced, and they have partaken, as usual, of stimulants."

Further on he writes :—

> "Dr. Parkes, referring to Dr. Prout's observations on these cases of azoturia, distinctly states, 'I have never seen a disease of this kind.' It is obvious, therefore, not only that this condition of the urine has, in many instances, escaped recognition, but that the form of derangement on which it depends requires careful investigation."

In examining those cases of the disease which have been reported with a view to ascertaining its etiology, the exciting cause, in some instances, seems to have been mental anxiety, in others, it has apparently arisen from defective assimilation which has produced the characteristic nervousness and depression. In all cases the mental condition has probably reacted upon the disease, while the disease has tended to prolong the morbid mental state. In one of my own cases the commencement of the mental symptoms was attributed to a nervous shock.

We must look to pathology for aid in endeavouring to discover the essential nature of the affection, and probably there is no better guide than the writings of Dr. Bence Jones, who, in his "Lectures on Pathology and Therapeutics," has studied morbid processes with a view to add new light to the intelligent treatment of them. Taking his views as a basis, it would seem as if this were a malady of suboxidation, and in some respects similar to the diseased condition which is present in gout, for he says on page 130 :—

> "When analysis shows that an excess of uric acid is thrown out of the body, this is a proof that the gouty diathesis is ready to form whenever the kidneys cease to remove the excess from the system. The presence of any urates at all in the urine is a sign that oxidation is not so perfect as it might be, and the

more urates in the urine the more imperfect the oxidation in the system must be considered; but as long as the products of the imperfect oxidation are thrown out by the kidneys or skin no gouty diathesis is produced."

"Thus, then, first, excess of urea in the urine; secondly, oxalate of lime with excess of urea; and thirdly, urates in excess, by analysis, constitute the three tests of the different degrees of suboxidation which precede the establishment of gout."

This is one of those diseases in which we should hesitate before using stimulants in our *treatment, a point of great importance.* The physician would be very likely to recommend them in consequence of the depression and apparent weakness which are present, but alcohol interferes with oxidation. In one of the cases which came under my notice, stimulants had been prescribed with the effect of aggravating the symptoms, and in another, the patient found that giving up stimulants had been of more service than any other element of treatment. It may be that they will sometimes be required and then the light Rhenish wines should have the precedence. Of course it is very important that the mind should, as far as possible, be pleasantly occupied and the patient's thoughts diverted from himself. A certain degree of relief will in some instances be afforded by demonstrating to the patient that his morbid sensations are associated with a visible lesion, for nothing is more dreary to a sick person than to feel that he is suffering from a disease supposed by others to be imaginary and with regard to which he often receives but little satisfaction from those whom he consults. With this demonstration can also be held out a hope of relief. The diet should be easily assimilable and regular exercise be recommended. One of my patients had been much benefited by systematic rubbing, which probably improves oxidation by increasing the activity of the circulation, and hastening chemical changes. As is well known, alkalies have for years been found useful in correcting the gouty diathesis, and experience would naturally suggest the use of them. "Alkalies," says Dr. Bence Jones, "assist in the oxidation of organic substances, not by giving oxygen, but by promoting the formation of vegetable and animal acids, and ultimately forming carbonates out of the burning matter." It is worthy of notice that those who have mentioned this class of cases have used a somewhat similar treatment without clearly established indications. Dr. Fuller considers the disease to be "a perverted nervous action in consequence of disturbed assimilation." He recommends "neurine tonics, such as arsenic, quinia, strychnia, iron, and zinc, together with the mineral acids, the shower-bath and the dripping sheet." These, with alterative doses of blue pill and colchicum, he has usually found to afford relief. In one or two cases of extreme nervousness he has used the bromide of potassium in conjunction with iron, and occasionally the hypophosphite of soda. In a case mentioned by Dr. Roberts, which, he says, "seems to have been one of those Prout had in view," the treatment consisted of vegetable tonics with citrate of potassa, under which the patient's health greatly improved.

The advantage of studies like that which composes this paper is, that they tend towards increased knowledge of the essential nature of disease, and remove our practice further from empiricism. Besides, we often feel the necessity in treatment of keeping the diathesis of our patient in view without looking for a particular set of symptoms which only appear when the diathesis is fully developed. Our nosology is in many instances a grouping of names which are but the names of symptoms. Who can believe that such terms as inflammation, or dyspepsia, or gout will always answer to an increased knowledge of morbid processes. Already we see diseases such as dyspepsia and consumption split up into various varieties, and we can hardly realize that smallpox and measles and scarlet fever were formerly confounded together. We see pneumonias which, so far as treatment is concerned, closely resemble rheumatism and a large variety of pains which are the expression of different conditions of the constitution.

The test for nitrate of urea is one which may be employed by any general practitioner, for "a specimen of urine which yields crystals of nitrate of urea, when an equal bulk of nitric acid is added to it in the cold *without having been previously concentrated* is said to contain excess of urea."[1] The quantity of urea sometimes found is also very striking. It is of course important to know how far the quantity of urine passed in the twenty-four hours approaches the normal standard. The test is also valuable in differential diagnosis as aiding us to distinguish between nervous symptoms resulting from anæmia and those which accompany an excess of urea in the urine.

This study also suggests the necessity of examining the urine in cases of vertigo, to see if this symptom may not be one of the many in which uric acid or its congeners may manifest itself. It would also be well to see how far sleeplessness may, in some cases, depend upon a similar cause. Here it may be mentioned, as showing how this group of excretions present themselves in various diseases, that in 1860 I found a very marked excess of urea in the urine of a patient who suffered from *intolerable* headaches, and here, after trying a number of remedies in vain, the application of leeches to the nape of the neck gave very marked relief. I have also found the spiculated crystals of urate of soda in the urine of puerperal mania.

We may, besides, be led to inquire as to how far those alkaline remedies, such as muriate of ammonia, valerianate of ammonia, and bromide of potassium, often so efficient in nervous disorders, owe their effects to the combination, with a nervine, of one of those alkalies which combine with or dissolve uric acid. We leave the subject without entering upon an undue length in its consideration, since we trust there are some points of novelty here presented, which may at least awaken the inquiries of others, and we would bear in mind the quotation "that the increase of knowledge is not like that of other things, being often accompanied by a considerable diminution in bulk."

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[1] Kidney Diseases and Urinary Deposits, 3d edition, page 185.

ART. VII.—*On the Inhalation of the Nitrous Oxide Gas when the Lungs are Diseased.* By E. HOLDEN, M. D., of Newark, N. J.

THE cases which form the basis of the following article will probably commend themselves as of some interest to any physician called often to answer the question, "Can I inhale gas at the dentist's with impunity?" The observations from which the cases are selected have been numerous, and the cases themselves are, in a measure, typical of classes.

The availability of this gas for slight and brief surgical operations—its speedy action and the equally speedy disappearance of all effects of anæsthesia, are making its use so common that all information regarding it must prove of value, and especially so in view of the awakened interest in the subject of inhalation of gases as curative agents. I may be pardoned for parenthetically stating that, while my own experience with nitrous oxide as a therapeutic agent in phthisical cases has been anything but favourable, and I have seen hæmoptysis immediately follow a carefully conducted inhalation of oxygen, yet I by no means felt assured that their inhalation *per se* was especially injurious at the commencement of the present investigation. Nitrous oxide in its purest state produces rapid venosity of circulation; the great founder of the German medico-anatomical school, Rokitansky, asserts that a condition of venosity is inimical to tubercle (p. 241, vol. ii.); theoretically, therefore, the gas should be beneficial in tuberculosis. Oxygen produces, of course, the opposite condition.

Tuberculosis, according to not a few brilliant labourers of the present day, is but a commencing death of organism—an excessive retrograde metamorphosis of tissue-destruction without adequate repair, and which the oxygen of mountain air and of unrestrained out-door life is credited with power to arrest; theoretically, therefore, oxygen should be beneficial by inhalation. M. Demarquay has recently experimented in this direction, and paradoxical as the ideas in the cases as stated may be, they are easily reconcilable by the belief that *neither* of the gases as used has been, or is likely to be, curative. The general effect, however, of the agent under consideration, when persistently and frequently inhaled as a therapeutical means, has little to do with the answer to the question already quoted, and which can be more pertinently rendered, "Can I, having diseased lungs (and especially if subject to hæmoptysis), inhale nitrous oxide gas at the dentist's with safety?"

Most of the cases from which the following have been selected have been observed at the dental rooms of Dr. J. B. Da Camara, in this city (Newark, N. J.), whose extensive experience with the gas is probably second to none in this country. The gas was made in the ordinary way by heating nitrate of ammonia in a retort, maintaining a temperature of 400° to 500°, and thoroughly washing through successive jars of water. The ammonia was selected with especial care, in order to avoid accidental contamination with hydrochloric acid, the presence of which invariably results in an admixture of free chlorine with the peroxide, and consequently in an irritant effect upon the lungs. It is well to observe that frequently persons presented themselves who had at other places tried inhalation in vain, violent headaches, convulsions, suffocating sensations, &c., had invariably necessitated abandonment of the effort; yet they succumbed with greatest ease when the pure gas was administered. This point is the more important, since none of the effects noted in the subjoined cases can be attributed to impurity of gas.

From the washing-jars the gas was conducted to large metallic retorts, holding from 400 to 500 gallons, and made fresh every day, since it is a singular fact that age seems to impair its anæsthetic power, and gives rise to symptoms never observed when the gas is used in freshness and purity. This impairment is far more marked when rubber bags are used as holders, and seems to admit of explanation in such cases; but in metallic receivers suspended in water already saturated with all the gas possible to be absorbed (three-fourths of its bulk), without escape and without diminution of volume, reason for loss of anæsthetic power is not so apparent.

The inhalation was performed with total exclusion of atmospheric air through a mouthpiece of silver which fitted accurately about the cheeks and lips, expiration being performed through a valve in the same piece. The patient was always in the sitting posture, to facilitate easy and frequent auscultation and percussion.

The two following cases may be interesting as illustrative of the general effects of inhalation upon a healthy person.

CASE I.—A girl, æt. 12 years; ruddy complexion; about average size; lungs, heart, and indeed all organs, in sound condition; no nervousness or apprehension; pulse 65, after steady inhalation for one minute; pulse accelerated without increased number of respirations; rapid discoloration of lips, then of extremities; no distension of superficial veins; marked lividity of whole face; eyes remaining open (not a universal rule, but rather unusual) disclosed slow dilatation of pupil; eyeballs visibly receding as after death, and the countenance corpse-like; anæsthesia complete before expiration of second minute, and preceded by slight struggling as if to prevent suffocation; pulse 80, soft and regular; inhalation discontinued;

duration of anæsthesia fifteen seconds; time from instant of complete anæsthesia to complete and perfect recovery, between one and two minutes.

Lungs in this case not examined during anæsthesia; as a result, however, of many examinations of others, the following statement may be considered illustrative:—

The first change, and one that usually occurs after the third or fourth full inhalation, is a marked softening of bronchial air sounds, and intensification of the vesicular, followed by speedy intensification of the former and obliteration of the latter. Then follows the sub-crepitant rhonchus indicative of mucus in the finer bronchial tubes, then rapidly the sounds of air-bubbles in the larger tubes, prolonged respiration, and vocal resonance.

In several cases suffering from the commonly-styled "stuffed" feeling that often ushers in a subacute attack of bronchitis, and in which a marked sibilant character was observed in the passage of air through the finer bronchi prior to inhalation, a remarkable cessation of such sound was observed after a few inhalations, whether correctly or not, and was attributed to sudden relaxation of bronchial spasm. This peculiarity will be again referred to in connection with Supplementary Case II.

The second of the cases designated illustrative is more rare, because anæsthesia is peculiarly rapid, and unaccompanied by lividity or other noticeable symptom.

Case II.—Male, æt. 27, unmarried; temperament sanguine; complexion fair; health good, and believed sound in all respects, but mother died of consumption, and party had suffered from (strumous) necrosis of femur, and might, perhaps, be said to be more than usually susceptible to influences of temperature.

Examination prior to inhalation revealed weakness of vesicular quality, want of proper breeziness and tone to general respiration, a condition suggestive also of imperfect resilient power of lungs, but no disease; pulse 72.

One inhalation produced incoherence of speech, and four anæsthesia. Examination during inhalation gave results similar to those stated as common to sound lungs, but no lividity of extremities or lips existed; vesicular quality of respiration absent during the whole period of anæsthesia, however, and gums and inside of cheeks of clearly venous hue; pulse 80 to 95, and variable. Anæsthesia prolonged two minutes; recovery complete in two minutes, and normal condition of lungs restored within that time.

The following notes also, taken at intervals during the five months occupied in the investigation, may be of interest:—

a. Nitrous oxide inhaled in the manner indicated produces no tendency to laughter, admixture with atmospheric air being essential to the development of this well-known characteristic.

b. There is usually considerable struggling at the approach of anæsthesia, occasionally suggestive of desire to escape suffocation, but which is probably owing to an automatic impulse occasioned by the thought of possibility of suffocation already existing in the mind of the patient, since the subject last in the mind becomes the foundation of any dream that may occur; for example, the bubbling of water produces in the semi-unconsciousness just preceding and following anæsthesia a dream of music; the steady tick of a clock, the roar of the surf on the beach whispers of pleasure or pain, the scenes or instruments that usually give rise to these emotions. It is probable, also, that in this way we may explain the evident erotic tendencies that are so frequently developed, the most chaste and virtuous being liable to gestures and movements which, if not so evidently automatic, would be considered most lascivious. (See Supplementary Case I.)

This tendency is, without doubt, the result of the thought of possible violation; for the subject of it is almost universally a female, and there are few who sit down in a dentist's chair who have not heard or read of the stories regarding such attempts upon females while in a state of unconsciousness, and almost always where this erotic excitement is developed there are none but males present, the patient partly reclines with feet somewhat elevated, and a fear, perhaps only momentary, that there is danger, would be a most natural one.

c. There is almost always intensification of the senses, especially of sight and hearing, just prior to unconsciousness, and in spite of the seeming contradiction in the statement this intensification may possibly continue in many cases throughout (the faculties of memory and coördination being in abeyance), for however oblivious upon recovery a person may be of having suffered pain, yet the contortions of countenance and occasional screaming show that feeling is not destroyed; of course it is not asserted that anæsthesia cannot be made so complete as to utterly destroy feeling, but usually this is not the case, although to all intents and purposes unconsciousness is perfect, and no memory of pain exists upon recovery. I am indebted to the dentist, at whose office many of these experiments were made, for a suggestion which is probably a correct one in reference to the anæsthesia produced, which is that there is simply a lightning-like flow of ideas with impairment and in many cases obliteration of memory, for a person *may stand erect* and gradually inhale sufficient gas to produce complete oblivion, and experience all the minute shades of thought and feeling that belong to every-day life, and this through an apparent series of days and weeks and even years, live, travel, be ill and recover, enjoy, suffer, and in fact undergo a distinct existence, and yet recover consciousness in time to prevent falling. If in this ecstasy a tooth be drawn, or other surgical operation be performed, the painful sensation is intruded upon with such lightning-like rapidity, and is so speedily merged into the tissue of the dream, as to be overwhelmed and forgotten.

d. Vision is, as I have said, frequently intensified, and perhaps invariably so long as a state of semi-consciousness is maintained; the minute twigs on somewhat distant trees, the fine letters upon street signs, faces out of recognizing distance, &c., are brought within range often to an astonishing degree. Hearing is also intensified, although greater care is necessary to maintain only a certain amount of æsthesia, for the line is easily crossed, and dulness of hearing is the consequence.

e. There is occasional (not invariable) dilatation of pupil.

f. There always exists an increased tendency to bleed, whatever be the condition or temperament of the patient, and whatever be the part of the body cut or abraded. The case of the young girl cited first, as illustrative, was the subject of severe hemorrhage from the gums during the operation of extracting teeth, and at intervals, for three weeks following (on two occasions to syncope).

g. Three patients, the subjects of epilepsy, hysteria, and epileptiform hysteria respectively, came under observation, in regard to which the following extracts are made from notes:—

The first, a girl of 19, who had been subject to convulsions since childhood, exhibited no tendency to convulsion during, or subsequent to, anæsthesia, although she had suffered from attacks as often as ten or twelve times a week for several weeks prior to inhalation.

The second, an octoroon aged 21, had been the victim of as frequent attacks of epileptiform hysteria; she had two convulsions in quick succession upon the approach of unconsciousness, and several immediately after (no dilatation of pupil, and no lividity).

The third, typical of a very large class of patients, exhibited violent hysteria immediately upon regaining, or rather approaching, consciousness, and for several hours suffered recurrence of attack.

h. While an antipathy that may be termed idiosyncratic may actually exist to the inhalation of the gas, inability to produce anæsthesia almost invariably arises from impurity of the anæsthetic, or from its staleness, and a large majority of all the headaches and subsequent bad feelings that are sometimes complained of, undoubtedly arise from the same cause. Case IV. is, however, an exception to this rule.

CASE I.—Male, æt. 35, 5 feet 10 inches high, 140 pounds weight, florid complexion, healthy appearance, had occasionally raised blood last winter and ten years ago, at each of these periods, covering a space of six weeks; had also had two attacks of unconsciousness attributed to sunstroke; has often inhaled the gas.

Examination of lungs prior to inhalation showed disease of one apex probably tubercular, incipient, and quiescent. Five full inspirations produced marked lividity of lips and speedy anæsthesia, with twitchings of muscles, and symptoms of threatened convulsions. Examination during unconsciousness showed in vicinity of disease first, rapid extension of area of dulness, accompanied by increased resonance of bronchial air sounds, intensification of vocal resonance (the occasional moans of patient being transmitted with singular acuteness), then fine crepitation in vicinity of disease gradually appearing also in healthy portions of both lungs and becoming a marked coarse rhonchus at apices with total disappearance of vesicular murmurs.

Upon withdrawal of the anæsthetic, recovery was remarkably rapid (30 seconds).

Examination immediately after return to consciousness gave a generally intensified respiratory murmur with diminished vesicular quality, and rales more or less pronounced, bronchial murmur tubular, two points in one lung near the base an occasional twang as of a snapped guitar string, restoration of normal quality and condition too rapid to permit proper percussion (45 seconds), restoration of natural colour to lips and face equally rapid.

Examination twenty-four hours after inhalation showed normal condition restored in healthy portions, and no marked change at point of disease.

Patient states that having had occasion to inhale frequently both in this and a former winter, he had been subsequently troubled with raising of blood and irritative morning cough, which discontinued upon renouncing the practice.

CASE II.—Male, æt. 54; mastication of food impaired by loss of teeth, and therefore dyspeptic; has a cold, states that lungs were always weak; never raised blood, has the appearance of moderate health. Examination prior to inhalation: Right lung sound, left gave pronounced bronchial breathing at apex; expiratory murmur jerking and wavy; vocal resonance behind scapula over a space of two square inches, no signs of softening or vomicæ; pulse 90.

Under inhalation, nervous struggling somewhat during second half minute; lips and nails livid; becoming partly unconscious, tore away the inhaler; after two minutes again inhaled; unconscious in one and a half minutes; recovery commenced almost immediately upon withdrawing gas; laughter and crying; volubility with connected and intelligible speech two to three minutes, during which, examination was again made; pulse 100.

Examination during unconsciousness gave duplication of sounds stated under Case I.

Examination after discontinuing inhalation gave bronchial breathing well marked and inclined to tubular, over whole of upper portion of both lungs; vesicular character of inspiratory act replaced by sibilant murmur; crepitation in vicinity of solidified tissue; gradual return to normal character; party expresses a sense of great relief in breathing, and feels generally better than before inhalation.

CASE III.—Young lady æt. 24, states that she has weak lungs; never raised blood; takes cold easily; is subject to pain in left shoulder; complexion good; appearance that of average health.

Examination before inhalation: right lung sound; left, under scapula, shows vocal resonance, pronounced bronchial breathing, prolonged expiratory murmur, and in short the evidences of consolidation of tissue without softening or local inflammatory action.

Under inhalation pulse ran down rapidly, becoming weaker, till almost imperceptible; much gas required; lividity not marked; nervous twitching and convulsive struggling considerable.

Examination after anæsthesia (two minutes) confined to spot above referred to: Breathing amphoric; fine crepitation in vicinity of consolidation (vesicular murmur elsewhere clear and distinct); no increase or change in sensitiveness of part; sounds strongly suggestive of the accession of diseased action upon a latent phthisis, such as is usually ascribed by the patient to a new cold.

CASE IV.—Female, æt. 35; has had occasional attacks of dyspnœa upon exertion, referred by her physician to disease of heart; has tried before to inhale nitrous oxide without success.

Examination prior to inhalation showed signs of incipient phthisis in both lungs at apices; heart sounds suggestive of dilatation (weak action and heightened systolic pitch); apex beat, however, distinct; no undulatory impulse, no prolonged post-systolic silence.

Inhalation of more than a few breaths of gas impossible, although pulse remained unchanged, and no signs occurred of systemic obstruction; upon removing the tube patient gasped convulsively for about a minute.

Examination during inhalation gave simple respiratory murmurs, puerile in character, with no other change; heart sounds more forcible with less quickness, exaggerated but not sharpened, giving to the ear a sensation of fulness or roundness.

Inability to inspire seemed to arise from loss of control over respiratory muscles, the pulse not accelerated nor heart's action laboured.

The same phenomena occurred at two previous inhalations.

CASE V.—Female, married, æt. 36, delicate in appearance, had taken gas before with no ill effect; knows one lung to be weak; no preliminary examination.

Examination during inhalation and while recovering consciousness: Right lung presented sounds common to well lung under anæsthesia (*i. e.*, exaggeration of respiratory murmurs, the tubular character of bronchial air column predominant); left lung gave all the sounds of cavity with progressive softening and singularly modified metallic tinkle; as patient was recovering consciousness she moaned, and vocal resonance was found well marked; great dulness on percussion, and apparent consolidation over large portions of upper lobe of left lung.

These sounds gradually changed, and in two minutes it was evident that no cavity existed, but that a small space of lung tissue was impervious to air and had been or was the seat of disease.

For several minutes the evidence of vascular congestion of the vesicular capillaries was well marked, and for five minutes after commencing to recover fine crepitation in the vicinity of consolidation showed an increased secretion of mucus.

Lividity of lips and finger-nails not well marked, and pulse fluctuated, probably from involuntary struggling. This patient had at times been troubled with severe cough and expectoration; never raised blood, but was subject to paroxysms of coughing upon rising in the morning.

Immediately after recovery and examination inhaled again to anæsthesia; auscultation and percussion gave same result as stated.

CASE VI.—Female, æt. 40, plump, well nourished, ruddy complexion, healthy looking, married. To my surprise found prolonged expiratory murmur under left scapula, vocal resonance and dulness at posterior apex and above scapula. Patient said "that lung is weak and sometimes have had pain in it." Liable to colds and cough; never raised blood, but once had a long cough with free expectoration; under clavicle on left side found prolonged expiration and general puerility of character of respiratory murmur.

Patient inhaled quietly and rapidly; lost consciousness without struggling; lividity slight and anæsthesia brief, but at the instant of unconsciousness my ear, being under left scapula near its superior portion, heard distinct metallic tinkle; a snapping at short intervals as of a wet guitar string; and rhonchus speedily followed by moist crepitation and pectoriloquy.

Examination after recovery (several times within five minutes): Crepitation coarser but still well marked; transmission of voice sounds probably from stagnating circulation through vesicular capillaries and occlusion of air cells, but suggestive of dilatation of bronchi and pressure of air vesicles toward the thoracic walls, slowly disappearing, however.

No bad effects experienced beyond an attack of hysterical crying.

CASE VII.—Lady, æt. 33, frail looking, with hectic flush on each cheek; has had short hard cough for several months on rising in the morning; occasional pain through the right shoulder and heavy feeling on the chest in front; had also hæmoptysis somewhat profuse one year ago, was then in apparent health; has since had uterine troubles; emaciation not marked; is better now than for months; had once tried to inhale nitrous oxide from a rubber bag, and under unfavourable circumstances, "was almost suffocated, not put to sleep;" has recently been examined by a physician of some prominence in town, and pronounced (party says) sound.

Examination before inhalation: Vocal resonance and dulness behind left scapula with prolonged expiratory murmur; the right lung, the supposed seat of former hemorrhage (since a burning sensation in that lung had resulted), considerably diseased; unable to decide without more critical examination whether there was cavity, but suspected it from hoarseness of bronchial note and voice sounds; pulse rapid and quick (95); under careful administration of gas the pulse rapidly assumed an hemorrhagic feeling; patient gasped and paled to an alarming degree; ear at lung detected sounds detailed in previous cases in lower left lobe, the upper giving simply exaggerated voice and breath sounds; the right lung at point of chief disease (apex) gave coarse crepitation and rhonchus, then scarcely any respiratory sound whatever. This fact, in connection with pulse and aspect of patient, decided us to abstain from giving more gas. Anæsthesia incomplete. Patient upon recovery was exceedingly alarmed, faint and gasping, clutching at the right and left breast alternately, and presenting all the impression of a person labouring under hæmoptysis. No blood however came, and in about five minutes patient recovered completely and the lungs assumed the condition noted in the preliminary examination; no headache or bad feeling resulted.

CASE VIII.—Male, æt. 37, has been a soldier, lost one leg and endured considerable hardship; raised blood about once a year for several years; has had for a long time a slight cough, and eight years ago was told by a consultation of physicians that one lung was almost gone and the other full of cavities, but since then has made up his mind to live, and has been steadily improving.

Found on preliminary examination that the lungs were in tolerable condition, one sound, the other diseased at the apex (left) with apparently a small cavity, but without the sounds of active disease.

During inhalation *no marked change occurred*, yet party was fully under the influence of the anæsthetic; face and lips livid; stertorous breathing as if from chloroform; eyes open, and a strong tendency to clonic spasm. (This stertor was noticed in none of the preceding cases.) Party upon rousing up was wild and incoherent for about a minute.

Critical examination during return to consciousness enabled me to detect no change beyond a very slight exaggeration of respiratory murmur, and this not confined to the point of former disease.

Examination after recovery showed still no change; party felt well and exhibited no effects whatever of his recent anæsthesia.

CASE IX.—Female, æt. 30, medium appearance as regards health; states that she has weak lungs and knows one lung to be seriously diseased or at least has been told so by physicians.

Never raised blood, but has long had a short cough and aching pains about the shoulder-blades; has no strength, &c. Upon examination prior to inhalation found at posterior portion of middle lobe of right lung a circumscribed spot of perceptible dulness with roughness of murmur and evident deficiency of resilient power in pulmonary tissue; some vocal resonance also and impairment of vesicular character. Examination during inhalation over point of morbid sound showed roughness and vocal resonance exaggerated, and heart sounds clearly transmitted; after a few minutes coarse crepitation and sounds like the stretching of rubber bands; much gasping, lividity, struggling, and stertor with complete loss of consciousness. (Had tried gas before in St. Louis, and dentist had been obliged to desist.)

Upon recovering was unconscious of having struggled, and in a few minutes felt perfectly well with no headache or other ill feeling. After ten minutes the condition noted in preliminary examination was restored.

CASE X.—Female, married, æt. 36, delicate in appearance, and thinks both lungs diseased; has had cough over a year, and hectic fever within six months, but of short duration. Has been gaining flesh and strength under cod-liver oil and wine; able to be constantly about; never raised blood.

Examination before inhalation: Disease of one lung at apex and of considerable extent with small cavity; no circumscribing dulness or consolidation in vicinity of the cavity; no evidence in short of progressive deposit or new breaking up of tissue.

Inhalation gave sense of great relief and lightness in the chest.

Examination during inhalation: Rapid enlargement of area of dulness; coarse crepitant râles and speedy disappearance of vesicular murmur throughout diseased lung.

Sound lung affected in a peculiar manner; apex, which had before appeared healthy, presented all the evidences of incipient phthisis, the remaining portion of the lung being affected in the manner indicated as common to healthy lungs.

After return of consciousness the sound[1] lung speedily cleared itself of morbid sounds; the other much more slowly.

The above cases given in detail would be left without comment but for the fact that as they are copied almost verbatim from notes made at the time of observation their important features are not made prominent. The observations of which the cases are designed to be illustrative indicate to my mind, although they by no means prove the following facts, and from them it is easy to deduce an answer to the question proposed to be answered at the beginning of this article.

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[1] During the ensuing four weeks this case was repeatedly examined; several inhalations were indulged in for the pleasurable relief obtained, the demand growing more urgent and at shorter intervals; pulse, always somewhat accelerated, gradually maintained a persistent celerity that demanded a discontinuance of the practice. Contrary to advice, she continued (secretly) inhalations elsewhere under assurance of an empiric that she would thereby become permanently cured. After two weeks of rapid failing was found having hectic fever and exhibiting advancing disease in both lungs; pulse constantly above 100, and emaciation very rapid.

1st. Inhalation of nitrous oxide is in *some degree* likely to prove injurious in cases of phthisis.

2d. That inasmuch as pulmonary congéstion is almost a necessity to anæsthesia by this agent, and is concomitant with a well-marked tendency to increase of hemorrhage from any cut or abraded surface, its inhalation is somewhat hazardous in cases where hæmoptysis has occurred or where there exists an hemorrhagic diathesis.[1]

3d. That the sense of relief frequently experienced by those having diseased lungs is alluring simply and does not indicate benefit, and believing it to be due to an annulling of the hyperæsthesia of the bronchial nerves, the inference follows that the agent may prove curative or at least palliative in asthma and in affections accompanied by bronchial spasm.

Supplementary Case II. is referred to as an example of its effect.

The two cases following are appended as of interest.

SUPPLEMENTARY CASES.—I. Female, æt. 62, feeble, supposed to have heart disease, complexion pallid, pulse irregular, subject to "faint spells;" preliminary examination showed no evidence of disease of heart; irregularity of pulse, probably due to nervous excitement.

Respiratory murmurs markedly puerile.

Under anæsthesia pulse became regular, then gradually imperceptible; face livid and peculiarly corpse-like; puerile character of respiration gradually gave place to soft vesicular murmur and normal condition found in sound adult lungs; evident erotic excitement with motions as of sexual intercourse just prior to and following complete anæsthesia.

II. Boy, æt. 12, with the contracted chest, distended superficial veins, and peculiar look of an asthmatic.

Preliminary examination showed quite extensive emphysema of right lung with bronchitis of both, of chronic character and eccentric hypertrophy of the heart (right ventricle dilated); apex beat two and one-half inches from proper place toward median line; area of dulness hard to define owing to contiguous dulness of lower left thorax, but estimated at three and one-fourth in transverse and four and three-fourths in vertico-oblique diameter, or about the size of the heart of an adult; pulse irregular; wheezing and trachéal rattle particularly well marked; has frequently raised mucus streaked with blood; had attacks of asthma since the age of five years. Examination during inhalation, which was not pushed to anæsthesia, showed gradual freedom of respiration, and was accompanied by a sense of great relief. After two minutes the air penetrated freely without wheeze or rattle to every part of both lungs; a portion of left lung where vocal resonance had been noticed before inhalation assumed healthy sounds and resonance disappeared.

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[1] I have been credibly informed of cases where hæmoptysis has occurred in the dentist's chair, and have known of others following the inhalation of the gas.

Examination ten minutes after recovery showed still comparatively healthy sounds throughout the lungs.

The night following this exhibition of the gas the patient had *no attack* of dyspnœa; no wheeze or rattle, and felt great relief in breathing, the first time in several weeks; he was moreover able to lie down in bed, for the first time in an equally long period. The next day examination prior to inhalation showed greater area of true vesicular murmur, and certainly what appeared marked improvement in general respiratory condition.

Examination during inhalation showed a gradual clearing out as it were of air tubes with marked vesicular improvement, passing gradually into a condition similar to what has been described, viz., of evident congestion and occlusion of air cells; well pronounced bronchial breathing, and at apex of left lung clearly transmitted heart sounds. After inhalation, which had been continued twelve minutes, patient spoke of the same sense of relief even while there remained still considerable occlusion of air cells.

The transmission of heart sounds, which singularly had occurred at seat of greatest emphysema, gradually ceased. Pulse and heart's action assumed a steady regularity during inhalation and became again irregular upon recovery.[1]

Daily inhalations of about fifteen minutes were indulged in, but in no instance to complete anæsthesia, and from the date of the third inhalation no attack recurred for a month, and patient, who meanwhile had been using no other medication, was instructed to return home, and upon the first suspicion of threatened dyspnœa to resort to nitrous oxide; accordingly, February 18, he presented himself, saying he had felt "wheezy, and found his breath somewhat shortened."

Daily inhalations as before, but for four days only; removed every vestige of trouble, and an examination of the heart gave the following remarkable result: area of dulness diminished laterally one-half inch; longitudinally three-fourths of an inch; apex beat one and one-fourth inches from its normal place.

Several weeks of immunity from all unpleasant symptoms have elapsed at the date of writing, and while one case proves nothing, however corroborative it may seem of a preconceived theory, the suggestion afforded by the remarkable relief obtained may be of service to some sufferer similarly situated.

ART. VIII.—*On the Proper Use of the Obstetric Forceps.* By ELLERSLIE WALLACE, M. D., Professor of Obstetrics and of the Diseases of Women and Children in Jefferson Medical College, Philadelphia.

SEVERAL practitioners from the western section of our country, who attended my lectures during the past session, stated to me what I had often previously been told, that there was a great popular prejudice in their neighbourhoods, which was fostered by the profession, against the use of the obstetric forceps, so that if any obstetrician were known to carry that instrument with him to a case of labour "it would ruin him—it would howl him out of practice." They, therefore, urged me to publish the views on the subject of the proper use of the forceps, which they had heard me inculcate in my lectures, and requested that they should be published in the *American Journal of the Medical Sciences*, "for they were persuaded that such publication would tend to counteract the ignorance and prejudice which deterred practitioners from resorting to instrumental delivery in appropriate cases, and which thus often allowed the lives of mothers and children to be sacrificed."

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[1] This feature, already before noted, occurred in many instances, and is suggestive of possible benefit to be derived also by sufferers from cardiac neurosis.

A student from the west said to me, "There is not a pair of obstetric forceps in my county, and in the last year three women have died, undelivered; and when the two physicians in attendance were asked the cause of the deaths, they replied that the children could not be born, and so, of course, the women died!"

One gentleman told me, "There is but one pair of forceps in the county, and these I own. They are occasionally, but rarely, borrowed."

Another says, "I was called in consultation, just before leaving my home last fall, to see a woman who had been in labour for nearly two days; she was seriously exhausted; the breech of the child was presenting at the inferior strait; with my blunt hook I drew the breech down, gently and patiently. The entire breech was devoid of cuticle, which had been pulled and rubbed off by the attempts made to deliver the buttocks, by the fingers, prior to my arrival. The child was dead; the cord was flaccid and soft, and no pulsation in it. The head lodged in the vagina. The woman could not expel it. I said, 'Give me my forceps.' The answer was, 'No, sir, we both object to the use of the instrument; give her fifty minutes and she will deliver herself.' I said, 'I will not give her fifty seconds.' I would not consent to be overruled; I applied the forceps, and instantly removed the head, for which operation I was censured. The woman recovered perfectly."

I could multiply such records.

I have said to my class that "I deny the right of any man to attend a case of labour unless he carries his forceps with him; and I consider that teaching to be erroneous, which says, go without your forceps, but *send for them* when you see the probable necessity of their use." Now, I appeal to the experience of obstetricians who have *sent for their forceps* under emergency. Have they not sometimes regretted that they had them not at hand, for *instant* use, in certain of these emergencies?

Suppose, now, a case of puerperal convulsions occurring during labour, caused, as they often are, "by the pains of labour as the head is escaping from the circle of the os uteri,"[1] or "when it distends the perineum, and partially dilates the vulva."[2] "It is then, especially, that a prompt termination of the labour puts an end to the convulsive attack."[3] Under these circumstances "the very best practice . . . . is to deliver the patient. . . . . There should be no hesitation in using the forceps."[4] But if your forceps should be at your home, perhaps miles away? And we all have seen this awful malady suddenly set in, without more than a few minutes or 'a few seconds' warning. And so of other formidable conditions or accidents, such as placenta prævia, partial or complete; accidental hemorrhage; prolapse of the umbilical cord; rupture of the vagina, or uterus, where an *instant* delivery—impossible without the forceps—*may be* indicated. Or in cases of hernia, of heart disease, of phthisis with hemorrhages on exertion, of exhaustion rapidly occurring, &c.; cases in which prolonged labour is danger and death to the mother, and thence to the child, shall you send for your forceps, miles away? or shall you—not possessing the instrument—seek to borrow a pair from some one and find that "there is not a pair of forceps in your county?" Far better is it to take your forceps to a hundred cases in which they shall not be required, than to want them in a single case, and then to be without them.

I well know that some high authorities object to taking the forceps to every case of labour on the ground that *we may be tempted to use them unnecessarily, and therefore improperly!* Shall a man not be trusted with the tools of his trade?

The late Dr. Chas. D. Meigs used to tell his classes of a case of breech presentation, in which the head of the child lodged in the vagina. He pressed off the perineum, and admitted the air freely to its mouth and nostrils. "The child cried from within the vagina, and I felt a hope that the forceps, *which I now sent for*, would arrive in time for its succor. In two minutes after I received the instruments they were applied, and the head withdrawn, but *it was too late to resuscitate the child.*" The case is recorded in his *Treatise on Obstetrics*. If he had carried his forceps with him, a life would have been saved.

I was summoned some time ago to attend a young woman in her labour. Upon entering the house I learned that the child's entire body had been born some minutes. I ran up stairs, touched the umbilical cord and found it silent. I did not wait to warm or grease the forceps. I did not even remove my overcoat, but at once put the forceps on, and delivered the head. The child's heart-throb could not be heard nor felt. I inflated the lungs a few times, and then the heart sounded. I was obliged te continue artificial respiration for more than twenty minutes before the child began to breathe. It revived and did well. Suppose I had lost time by sending for my forceps—two-thirds of a mile—to my house! Many an obstetrician has met with just such cases, and has dealt with them in the same way, and with like results.

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[1] Colombat. [2] Tyler Smith. [3] Cazeaux. [4] Bedford.

Further, I have said to my class that the forceps are not used as often as they should be. I have taught that when the woman's powers *begin* to fail, when the pains are diminishing in force, frequency, and duration, and *before exhaustion can set in*, the instrument should be applied, if it be possible to apply it. I dissent from the doctrine which is laid down in some books, that the forceps must never be applied within the os uteri. Suppose the head will not enter the superior strait because of undue size of head, or of somewhat contracted pelvis, if we wait till the os uteri has risen above the head, we will wait till the vagina has been elongated to some ten inches or more—an anatomical impossibility. We occasionally meet with cases where the pains are waning out, or where, indeed, all labour pain has ceased, and where the os is yet not fully dilated, and is, possibly, somewhat tense, and the woman is more or less exhausted. We may give her good broth, or brandy punch, etc.—we ought to do so, to support her vital powers—but we *must*, in such cases, apply our forceps, and, by gentle traction, wedge open the os uteri, and gently and steadily deliver her, and so save her life and the life of the child.

Let us suppose that the child's head is jammed and locked in the pelvis; —how long shall we leave it there? How long shall we permit a well acting uterus to *compress* the placenta against the buttocks of the child, and to *express* from it the child's blood, to the risk of the child's life? If the head do not advance under the influence of (say) six or eight good and strong pains, we should apply the forceps, and *make* it advance, first, to save the child, and second, to save the mother's tissues from injury by compression too long continued. Some authorities tell us to wait for four hours, and others say wait for six or eight hours, and let the head be moulded by these hours of pain, so that it may pass on without assistance. I consider such doctrine to be bad practice, and worse humanity.

Objectors to the forceps say that labour is a physiological process, and must not be interfered with, except in last extremity. Who has not heard this remark, or one somewhat like it? Now I would insist that labour is *not* a physiological process, unless it be *natural* labour, where the woman can deliver herself safely, and with safety to her child. All other labours are preternatural.

If the head ceases to advance after having been subjected to six or eight good and strong pains, is that a natural condition? Is it physiological? Is it not rather a pathological state engrafted upon a physiological process? Natural labour is, more or less, regularly progressive, both as to dilatation of the os uteri, and to descent of the child. Otherwise, the labour becomes preternatural. If six or eight pains, of good average power, cannot propel the head when it is in the pelvis, the labour is now preternatural—it is not progressing according to natural and physiological laws—and so, by all allowance, aid is demanded at the hand of the obstetrician. I was called in consultation, some time ago, where a head had been impacted for only some four hours. Craniotomy was necessary. But the woman had a frightful slough of the vagina, and her recovery was tedious. The slough was caused by four hours of pressure.

We see cases of arrest of the head by a too resistant perineum, the pains diminishing in frequency, duration, and power. If the stronger pains, of greater length and of more frequent occurrence, have not propelled the child, shall these feebler, shorter, and more distant pains accomplish the delivery?

Put on the forceps, make a little extension, and see how quickly and how easily the head will be born. (See *Cazeaux*, second American edition, pages 825–6.)

Dr. Andrew Nebinger, well known in our city as a practitioner of large experience, says: "I have never gone to a case of labour at night without my forceps, nor even by day, unless my patient was close by. I have, in a few cases, I believe, erred, but *by omission*, in not applying the forceps soon enough; I certainly have not erred *by commission*, in applying them unnecessarily." Dr. Penrose, Professor of Obstetrics and Diseases of Women and Children in the University of Pennsylvania, tells me that he always carries his forceps with him to cases of labour, and has yet to regret having applied them too soon, or too often.

Of course, in making the above remarks, it is supposed that the practitioner thoroughly understands the forceps, the mode of application, and the nature of their action. There can be no doubt that this instrument, in the hands of the imprudent and unskilled, may be as potent for evil as, under proper circumstances, it is powerful for good.

I am well aware that to most of the readers of this Journal the doctrines now inculcated have no novelty, and the expression of them may seem to be unnecessary, but we have been induced to publish them in compliance with the earnest request of many respectable practitioners who desire to be sustained in the performance of their duties, and protected against the slanders to which they have been exposed.

Art. IX.—*On the Influence of Section of the Cervical Pneumogastrics upon the Action of Emetics and Cathartics.* By Horatio C. Wood, M.D., Jr., Professor of Botany in the University of Pennsylvania.

Last summer, whilst making the investigations upon the veratrum alkaloids, which were reported in the January number of this Journal, I had occasion to kill animals with veratria, after division of the pneumogastrics in the neck, and was surprised to find that neither vomiting nor purging were induced. At first the simple explanation of idiosyncrasies suggested itself, but when several experiments coincided, it was obvious that individual peculiarities could not account for habitual results—that there must be some connection between the pneumogastric nerves and gastro-intestinal secretion; especially was this the case when the use of veratroidia was followed by similar absence of symptoms.

The experiments performed last summer were too few in number to lead to any conclusion whatever, but acted simply as an incentive to the present research, which was undertaken the more freely as tending to throw light upon the causes which, in various diseases, prevent purgatives from acting except in an increased dose.

The first question that arose in my mind in entering upon this investigation was as to the anatomical relations of the pneumogastrics and the intestines.

A prolonged search through English and French anatomical works resulted only in the confirmation of my previous idea, that the pneumogastric nerves do not descend in the abdomen below the upper end of the duodenum.

Finally, however, my attention was directed to a beautifully illustrated prize essay published in the *Zeitschrift für Wissenschaftliche Zoologie*, Band X., by Dr. J. Rollman. In this the author claims to have demonstrated that, whilst the anterior or left pneumogastric is distributed in the abdomen to the stomach and liver only, the posterior or right nerve, giving off but few filaments to the former viscus, passes to the liver, the spleen, the kidneys, supra-renal capsules, and the whole of the small intestines.

There consequently seemed ground for believing that such anatomical relation exists between the par vagum and the intestinal canal as might account for a connection of function between them. In order to discover the opinions of other observers as to the effect of section of the pneumogastrics upon secretion in the stomach and bowels, a search through all accessible French, English, and German authorities was instituted.

I believe it is now generally admitted that division of these nerves in the neck arrests secretion in the stomach, but I have not found more than two allusions to a similar influence upon intestinal secretion, one in a paper by Sir Benjamin Brodie, and the other in Dr. Reid's essays. These will be considered hereafter. As to the immediate cause of arrest of secretion in the stomach, there appears to be great diversity of opinion. This will also be commented on subsequently.

The series of experiments which will be first detailed was instituted to determine how far section of the par vagum interferes with vomiting. The latest published experiments bearing upon this point, as well as the fullest that I have met with, are those contained in the elaborate work of M. Schiff on digestion.

One set of his experiments would seem to prove that under certain circumstances vomiting can occur after the pneumogastrics have been cut in the neck. In these experiments, after such division of the nerves, M. Schiff introduced a stomach tube through an artificial opening into the cervical œsophagus, and passed it into the stomach. He then pushed through this tube, by means of a flexible piston, semi-solid food, of such a character as to be easily recognized. Out of 12 dogs subjected to this procedure, 7, after prolonged efforts, threw up a portion of the matters injected into the stomach.

M. Schiff does not appear to have tried whether, after section of the cervical pneumogastrics, it were possible to produce emesis by the action of ordinary emetics. He states, however, that when the nerves are cut below the diaphragm, tartar emetic causes efforts at vomiting as quickly as in healthy dogs, but that these efforts are rarely successful, or, if they be so, it is only after they have been very frequently repeated and long continued. His explanation of this is, that the division of the nerves prevents the co-ordination of the dilating fibres of the cardia and the associated actions of vomiting. The cardiac sphincter occasionally relaxes, but it does so, apparently, spontaneously, and without relation to the contractions of the stomach. So that if the opening of the cardiac orifice occurs at the same time as the expulsive efforts it is simply by chance. Successful vomiting is, therefore, dependent upon the fortuitous consentaneousness of complicated acts—which can happen but rarely. The function of the par vagum in this regard, then, according to this authority, is simply to harmonize the numerous acts necessary to successful vomiting.

First Series of Experiments.

Expt. 1.—Youngish mongrel hound. One hour after section of the pneumogastrics in the neck, the dog being strongly under the influence of sulphate of viridia, ⅓ gr. of the sulphate of veratria was given internally. Dog died in 30 minutes without vomiting or purging.

Expt. 2.—A good-sized Scotch terrier. One hour after section of the pneumogastrics in the neck, I gave hypodermically about ⅕th grain of sulphate of veratria. Thirty minutes afterwards I administered ½ grain in similar manner. The animal died one hour and twenty-five minutes afterwards without being purged or having made any efforts at vomiting.

Expt. 3.—I cut the pneumogastrics in the neck of a stout poodle dog, and some time after administered hypodermically one half of a grain of sulphate of veratria. Animal died in fifteen minutes without any vomiting or purging.

Expt. 4.—I cut the pneumogastrics in the neck of a small Scotch terrier, and a few minutes afterwards gave hypodermically one-half of a grain of sulphate of veratroidia. Thirty minutes after this there had been no vomiting or purging. I gave ¼ grain additional after twenty minutes. No efforts at vomiting; no purging. Injected another quarter of a grain. Dog died about two hours after this without having purged or made any effort at vomiting.

I have used tartar emetic once, after section of the cervical pneumogastrics, without causing vomiting, but I do not attach any value to this experiment,[1] as I have failed to cause vomiting in the only two animals with uninjured nerves to which I have given it. The experiments differ somewhat in their results from what is generally stated as to the action of antimonials, and I therefore insert them. They are, of course, too few to lead to any positive conclusion.

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[1] This experiment is further vitiated by having been made with a rabbit, which vomits with great difficulty, if at all. M. Bernard says, I believe, not at all.

Expt. 5.—Full-grown English rabbit. Cut pneumogastrics 12.40 P.M. Gave $1\frac{1}{8}$ grain tartar emetic in solution in both thighs—$2\frac{1}{4}$ grains in all. 5.30 P.M. No vomiting or purging; no other symptoms except those of general prostration. Gave gr. ij elaterium in alcohol hypodermically. 6. P.M. Rabbit dying in a convulsion; for five minutes previously has had convulsive movements. In five minutes afterwards the animal was dead. No vomiting or purging.

Expt. 6.—Full-grown English rabbit suffering from injury to throat; has not eaten anything for two days, but running about pretty lively. Gave gr. ijss of tartar emetic at 4 P.M. hypodermically. 6 P.M. No vomiting or purging; rabbit weak. Gave gr. jss additional. Animal died between this and half past seven without vomiting or purging.

Expt. 7.—Nov. 9. Large female cat. 10 A.M. Injected into cellular tissue of thigh gr. j antimonii et potassæ tartras, dissolved in fʒj of water. No apparent symptoms were induced up to 5 P.M., except unusual quietness. Cat not under observation after 5, until 9 o'clock, when she was found in the agonies of death. There had been apparently some slight purging, but no signs of vomiting could be discovered.

Besides the already detailed experiments, ten others will be subsequently related, having a direct bearing upon this point. In eight of these, lethal doses of veratria failed to provoke vomiting after section of the nerves; in the other two, arsenic was used with similar results. These experiments, therefore, in every way confirm those of the first series. With the latter they are to my mind sufficient to prove that emetics will not act after division of the cervical pneumogastrics. In my experience arsenic has never failed to cause violent emesis when introduced into the circulation of an uninjured animal, and all authorities agree as to the constancy of its purging and vomiting, without regard to the method of its administration. As to veratria, it also always, in uninjured animals, produces violent, distressing, repeated vomiting; doing so in small doses even with more certainty, if possible, than arsenic.

That the non-occurrence of emesis is caused by the arrest of gastric secretion is, I think, demonstrated by the absence of watery fluid in the stomach on post-mortem examination, and by the absence during life of any attempts at vomiting, such as Prof. Schiff has shown to occur in animals with similar lesions, when food is injected in some quantity into the stomach.

It will be observed that nearly all the experiments which have been detailed to demonstrate the failure of emetics to act after section of the cervical par vagum, have direct bearing upon the question of the action of purgatives, since the most powerful emetics are at the same time purgative. In order to determine positively the relation between the nerves and purgation, the following experiments were instituted:—

Second Series of Experiments.

Expt. 8.—I cut the pneumogastrics of a large sized English rabbit at 4.30. Gave gtt. j of croton oil in emulsion in thigh. 4.45. Rabbit lively. 5.30. Rabbit quiet; moaning in breathing; no purging; passed some dry feces. Gave gr. ijss of gamboge dissolved in alcohol, injected in four or five different places in cellular tissue. 6.20 P. M. No purging or vomiting. Injected gr. ij resinæ podophylli dissolved in f℥ss alcohol into peritoneal cavity. 7 P. M. Very weak, breathing quietly, not moving at all when touched. 7.30. Lying on side; breathing quietly, seemingly more conscious than at 7 o'clock; no purging; passed urine. 8. Tries occasionally to get on side but cannot. 9. Rabbit seems a little livelier. 10.45 P. M. Dying; only breathing three or four times a minute. Neither purging nor vomiting has occurred.

Remarks.—Not much importance can be attached to this experiment, as it is uncertain whether the same drugs would have purged the animal had the nerves been entire.

Expt. 9.—12.45. I cut pneumogastrics of a full-grown cat. Injected into peritoneal cavity gr. ijss podophyllin in alcoholic solution; into cellular tissue gr. j gamboge. 2.40 P. M. No purging. Injected into peritoneal cavity f℥ij extr. sennæ fluid. 4 P.M. No purging. 6.10. Cat still alive, able to mew faintly; no purging or vomiting. 9 P. M. Still alive; no purging. Died during night without purging.

Remarks.—This experiment is open to the same objections as the preceding. I find podophyllin a somewhat uncertain purgative in cats.

Expt. 10.—3 P. M. Cut pneumogastrics of a dog and injected gr. iij podophyllin in f℥iss alcohol into peritoneal cavity; also gr. j gamboge dissolved in alcohol. 4 P. M. No purging, dog quiet. 6.10. Alive, heart acting pretty regularly though feebly; no purging or vomiting. 8 P. M. Dog just dead. No purging or vomiting.

Remarks.—It may be very well objected to this experiment that the dog did not live long enough for the medicine to act. I thought, however, on the whole, best to detail it. It certainly does not weaken the proof.

Expt. 11.—Nov. 14. Gave gtt. ij *ol. tiglii* to a moderate sized cat at 2 P.M. by mouth. 4 P. M. Cat has been vomiting pretty freely. 6 P. M. No purging. Nov. 15. Has been some purging during night, apparently two passages, one partially formed, and one not so—perhaps all one passage. Cat seems all right.

Expt. 12.—Nov. 10, 10½ A. M. I gave to a large female cat gtt. ij of *ol. tiglii* by the mouth. 12 noon. No effect yet visible. 1.30 P. M. Cat has been purging several times; very weak; trembling all over and perfectly quiet in corner; apparently suffering. 2.30. No purging since. 4 P. M. Has been free from purgation since; cat mews livelier. Nov. 11. There has been more purging in the night, but cat seems quite lively. Nov. 12, 9½ A. M. Gave cat gtt. ij *ol. tiglii* by the mouth. 12 noon. No vomiting. Cut pneumogastrics. 1.30. No purging; cat seems strong, but quiet. Nov. 13. Has been no purging. 12 A. M. Gave hypodermically gr. ss of *veratriæ sulph.;* cat previously was weak but pretty lively. 1 A. M. Cat dead; do not know exactly how long after injection; had urinated freely; no purging.

Expt. 13.—Nov. 14. Gave between gtt. vi and x *ol. tiglii* by the mouth to a large cat at 10½ A. M. 12 noon. Has been profuse vomiting but no purging. 2½ P. M. Has been more vomiting, but no purging. 6 P. M. No purging, but very profuse vomiting. Nov. 15. Cat seems recovered. Gave 10½ A. M. f℥j castor oil, of which she probably got about half. Cat vomited directly; no effect on bowel. Nov. 16, 10 A. M. Gave same cat a bolus containing gr. x extr. jalapæ. 1 P. M. No vomiting or purging. 4½ P. M. No purging. No purging during night.

Remarks.—I think the excessive vomiting will account for the croton oil not purging in this case. It was constant, immediate, very much more prolonged—more violent, with more effusion of liquid than in either of the other instances. It was probably dependent upon the very large dose.

Expt. 14.—Nov. 13. Gave to a male and female cat each five drops of ol. tiglii by mouth, at 9.30 A. M. 11.30. Both cats have vomited freely; tom cat purged once. Attempting to cut pneumogastrics on latter, he died from effects of ether. 12 A. M. Cut the pneumogastrics of female cat successfully. 1.30 P. M. No purging. 4 P. M. No purging; cat seems very weak. 9 P. M. Cat still alive; no purging. Nov. 14. Cat died some time during night without purging. There had been urination.

Expt. 15.—Nov. 19. Kitten apparently about three months old, gave, 10.30 A. M., fʒss *liq. potassæ arsenitis*, hypodermically. 2 P. M. Has been freely purging and vomiting. 2.45 P. M. Cut the pneumogastrics, and injected into cellular tissue fʒiss *liq. potass. arsenitis.* 3 P. M. Kitten seems suffering a good deal; very uneasy and restless. 3.10. Kitten very weak. 3.15 P. M. Kitten dead, without vomiting or purging.

Expt. 16.—Nov. 19, 3.5. Cut pneumogastrics of a large cat, and injected into cellular tissue fʒij *liq. potassæ arsenitis.* 3.15. No symptoms. Injected fʒj additional into abdominal cavity. 3.30. No especial symptoms; cat quite lively; no vomiting or purging. 4 P. M. Injected gr. j *acid. arsenios.* in water into peritoneal cavity. 5 P. M. Cat dead. No purging or vomiting.

Expt. 17.—Nov. 16. Gave a small spaniel by the mouth a bolus containing *extr. jalapæ* gr. x, *ol. tiglii* gtt. j at 2 P. M. Dog vomited the bolus twice in twenty minutes; each time it was given to him again; in about ten minutes more he vomited again, but this time no bolus could be found in the matters rejected. Nov. 17. Has been pretty freely purged during the night.

Expt. 18.—Nov. 17. Gave a moderate size cur a bolus containing *extr. jalap.* gr. x, *ol. tiglii* gtt. iss at 10 A. M. 11. No effects manifested. 12 noon. Has been free purgation; dog vomited directly after exhibition of dose, but did not throw up bolus. At 3.30 gave same dog *another similar bolus.* 4 P. M. Dog has not vomited since last dose. 4.30 P. M. Have just cut the pneumogastrics; dog came up from ether with great difficulty, but at 5 was able to walk. Nov. 18. Dog had no passage since operation. Nov. 19, 2.30 P. M. Injected by means of hypodermic syringe 1¾ fluidrachms of *liq. potassæ arsenitis* into cellular tissue. 3.10. The dog has had a firm passage since 10 o'clock; it possibly had been in the rectum ever since the nerves were cut; possibly was the result of secretion in the large intestines; no symptoms save general uneasiness. Gave in similar manner fʒijss additional. 4.15. No marked change in symptoms. 4.30. Gave gr. iss *acid. arsenios.*, injected into cellular tissue dissolved in water. 5 P. M. Dog still alive; no purging or vomiting. 9 P. M. Dog still alive; no purging. Nov. 18. Dog died during night without purging or vomiting.

Expt. 19.—Nov. 21. I gave by mouth to a large female cat a bolus containing 15 grains of *calomel*, at 4 P. M. Nov. 24. Cat has been purged, and vomited freely during the night. 10 A. M. Gave a bolus containing 15 grains of *calomel.* 2 P. M. Gave a bolus containing 10 grains of *extract of jalap*, and one and a half drops of *croton oil.* 3 P. M. Cut the pneumogastric nerves just one hour after last dose, five hours after the calomel. Neither bolus was vomited. Nov. 23. There has been no purging during the night, but apparently urination. 2.45 P. M. Injected by means of Wood's syringe gr. ijss of *arsenious acid* into cavity of the peritoneum. 3.20 P. M. Cat in pretty much the same condition as before the injection. 4.40. Cat still alive; no purging or vomiting. It being about two hours since injection of arsenious acid, time sufficient to purge if it had the power, and wanting the carcass for dissection, I cut the carotids.

Expt. 20.—Nov. 25, 4 P. M. Gave 10 grains of *calomel* to a large male cat. Nov. 26. Has been purged pretty freely during the night. 9.30 A. M. Gave 15 grains of *calomel.* 12 P M. The cat has vomited a small portion of the mercurial. Gave a bolus containing 2 grains of *podophyllin*, 1 drop of *croton oil*, and 10 grains of *extract of jalap.* 2.30 P. M. The cat has been purged very freely since last dose, once or twice. Cut the pneumogastrics. 6 P. M. Cat pretty lively; no purging or vomiting. 9 A. M. Still alive; no vomiting or purging. Nov. 26, 9 A. M. Cat died during the night without purging or vomiting.

Autopsy.—Small bowels strongly contracted, not much larger than a large goose-quill; almost semitranslucent; waxy; almost as white as white wax; bloodless, with a small amount of very thick mucus in their interior; mucous membrane very pale and white, with here and there reddish flecks.

Expt. 21.—Dec. 10, 4 P. M. I gave 10 grains of *calomel* to a kitten apparently six months old. 4½ P. M. Vomiting. 5 P. M. Seems better. Dec. 11. Vomited and purged freely once or more during the night. 10 A. M. Gave gr. x of *calomel.* 3.15 P. M. Has been purged once since last visit. Gave gtt. j *ol. tiglii* in a bolus. 3.30 P. M. Cut the pneumogastrics. 4 P. M. Cat seems pretty lively; no vomiting or purging. 6 P M. About same; no vomiting or purging. 10 P. M. Still alive; no vomiting or purging. Dec. 11. Cat died some time during the night without any vomiting or purging.

Expt. 22.—Dec. 13. I gave 10 grains of *calomel* at 4 A. M. to a tortoise-shell kitten apparently six months old, perhaps older. Dec. 14. Kitten was purged very freely during the night. 10 A. M. Gave 10 grains of *calomel* in addition. 2.30 P. M. Kitten was purged since morning. Gave two pills containing each one drop of *croton oil* and two grains of *rhubarb.* Cat fought against taking them violently, chewed them up in her mouth, spit them out. We replaced the fragments several times, and she certainly swallowed equivalent to one pill. 2.45 P. M. Cut her pneumogastrics in the middle cervical region. 3.30. Cat seems pretty lively, walking about, fighting heroically upon attempting to seize her. 4.30. There has been no purging or vomiting since pneumogastrics were cut. Cat is weak, very quiet, when it walks staggering. Injected into the cellular tissue of the back a solution of *arsenious acid* supposed to contain one-sixth of a grain, may have contained more, certainly not less. 5. Seems about the same, still able to walk, although staggering and uneasy. There is no apparent disturbance of the respiratory function. 5.30. Cat able to walk; lies still most of the time; no vomiting or purging. 6. Seems better. 6.30. Attempted to inject ½ grain of *arsenious acid* into cellular tissue of back; cat flew into a violent passion thereat, bit, scratched, and behaved otherwise unseemly, so I was glad to let her go, with not more than a third the dose. 6.35. Cat running round the room wildly and stiffly, with head down; limbs and neck stiff; no vacillation in her gait; seems as it were convulsed. 6.45. Cat still in "tantrums." 6.55. Cat collapsed, nearly motionless; dying. Respiration for fifteen minutes has been markedly that of section of the pneumogastrics. No purging or vomiting.

Autopsy some time after death.—*Stomach* containing a quantity of thick, somewhat gelatinous, semitransparent, mucoid fluid. Small intestine contracted; nearly bloodless; empty; mucous membrane very pale.

Expt. 23.—Dec. 13. Gave 10 grains of *calomel* by the mouth at 4 P. M. to a black kitten, stout, vigorous, apparently nine months old. Dec. 14. Was purged freely during the night. 10 A. M. Gave an additional 10 grains. 2.40 P. M. Has been purging since morning. Gave a pill containing one drop of *croton oil* and two grains of *rhubarb;* swallowed without much difficulty. 3 P. M. Cut pneumogastrics. 3.30. Cat seems pretty well and strong, simply showing general signs of section of the par vagum. 4.30. Seems very lively; the marked evidences of respiratory disturbance have passed off. No vomiting or purging as yet since section of the nerves. Dec. 14, 10 A. M. Seems very bright, running about as if nothing was the matter. During the night she has passed water freely, and I found a few shreds of fecal mucoid matter, not half a teaspoonful, at her tail, which is covered with the remains of previous purging. This probably was from the wet, moistening the dirty, matted mass. Gave hypodermically gr. ss *acidum arseniosum.* 10.33 A. M. Cat seems sick, but running about and drinking. Gave gr. ⅓ of the arsenic additional. 2.30 P. M. Cat about the same, seems hardly so ill as at 11 A. M.; no vomiting or purging. Gave gr. ⅓ *acidum arseniosum* hypodermically. 3 P. M. Not much change. 3.25. No vomiting or purging; cat very quiet. Gave gr. ⅔ of *arsenious acid* hypodermically. 3.35. Cat dead, without vomiting or purging.

Autopsy five minutes after death.—Stomach empty; much of its mucous membrane swollen, and intensely dark red. *Small intestine.* Peristaltic action evident upon opening abdomen; excited very readily by pricking the gut; intestine empty; mucous membrane mostly pale, a little reddish in spots; everywhere very dry.

Expt. 24.—Dec. 15. 3.30 P. M. Gave to a stout cat a bolus containing one drop of *croton oil,* and directly after cut the pneumogastrics. 4.30. No purging; cat pretty well. Dec. 16. Has been no purging during the night; cat in good state. 2.30. Injected by means of Wood's syringe into cellular tissue, in four or five different places, 2 grains of *arsenious acid* diffused in water. 3.30. No new symptoms developed, save cat seems very quiet and weak. Injected 2 grains additional of the acid. 4 P. M. Cat very weak and sick, making some motions as though she would vomit, but really no vomiting or purging. 5 P. M. No change; no vomiting or purging. 9 P. M. Cat still alive; no vomiting or purging. Dec. 17. Cat died some time during the night. After 9 she had a single firm passage; this had apparently been formed, and then flattened by being laid on.

Autopsy.—Stomach containing considerable liquid; its mucous membrane excessively red and congested. Small intestine, containing in places some thick mucus, in others dry and empty; its mucous membrane in places somewhat reddened, in others normal.

Expt. 25.—Dec. 16, 3.10 P. M. Gave to a kitten apparently six months old, a bolus containing 10 grains of *calomel,* and ten minutes after cut the pneumogastrics. 3.30. Disturbance of respiration excessive, almost convulsive. Injected into cellular tissue gr. j *arsenious acid* in water. 3.45. Put 3 grains of *arsenious acid* on the cat's tongue, and washed it down with 8 grains of *gamboge* imperfectly suspended in an ounce of water; probably half of this was spilled. 5 P. M. Cat apparently much better, symptoms of disturbed respiration have subsided; no vomiting or purging. 9 P. M. Cat dead. No vomiting or purging.

Autopsy.—Stomach containing a considerable amount of watery fluid. Small intestines, in many places dryish, in others containing some thick mucus.

The experiments just detailed, taken in conjunction with those of the first series, seem sufficient to prove that purgation is impossible after division of the cervical pneumogastrics. As previously stated, the first two experiments of the series do not carry much weight, but experiments 10 and 12 are very conclusive. In 12, a cat, after free purgation has been produced by two drops of croton oil, the nerves being intact, receives again the same dose and in the same manner; two hours and a half are then allowed for absorption, and the nerves are divided; twenty-four hours afterwards, the medicines not having produced any effect, the animal is killed with veratria, dying without the stomach and bowels being excited to action. In experiment 13, two hours after the exhibition of a large dose of croton oil, when purgation had commenced in another animal to whom the same dose had been given at the same time, the nerves were cut, and the animal died without purging. Experiments 15 and 16 were made with arsenic, which, according to all observers, vomits and purges always when given in lethal doses, without reference to its mode of exhibition. In experiment 15 a non-fatal dose of the poison had previously freely purged the animal. Experiment 17 was merely tentative, and proved that croton oil and jalap act as purgatives to the dog. Experiment 18 is a very decisive one. A dog receives a bolus of croton oil and extract of jalap, and five and a half hours afterwards, this having freely operated, receives a second similar one. An hour after this the nerves are divided, and nearly two days afterwards the animal is slowly poisoned by arsenic, and yet is not purged or vomited. Experiment 19 is apparently an *experimentum crucis.* A cat, previously purged with fifteen grains of calomel, receives the same dose, and four hours after this ten grains of extract of jalap and a drop of croton oil. An hour after this the nerves are divided. Purgation is not induced, although the animal the next day is killed by two and a half grains of arsenious acid. Experiment 20 is very similar to this, except that the second mercurial was aided by ten grains of the jalap extract, a drop of croton oil, and two grains of podophyllin, and purgation allowed to commence before division of the nerves, ceasing immediately upon this. No arsenic was used. At the autopsy the small bowels were found contracted, with simply a slight amount of mucus in their interior. Experiment 21 is similar, except that the mercurial was aided by croton oil alone. Experiment 22 differs chiefly in the use of about a third of a grain of arseniate of potash. In experiment 23 the results were not quite so positive, although I believe there was no purging during the night, and it is certain that there was none when the animal was killed the next day with arsenic. In experiment 24 croton oil was alone used at the time the nerves were divided, but the animal died of arsenical poisoning nearly thirty-six hours after this without purging. In experiment 25 calomel, gamboge, and arsenious acid failed to induce purgation after division of the cervical pneumogastrics, the kitten living some six hours after the exhibition of the mercurial.

The results of these experiments were pretty plainly shadowed forth, although not definitively proven, by the late Sir Benjamin Brodie, in a paper published in the *Philosophical Transactions*, 1814, p. 102. His experiments were only four in number, and were all made with arsenious acid.

In the first, ten grains of the acid were inserted into the thigh of a dog after section of the pneumogastrics in the neck, the animal dying in three hours and a half. The stomach and mucous membranes on post-mortem examination were found to contain no mucus or watery secretions—only food and feces. The mucous membrane of the stomach and intestines was found inflamed. The second experiment was in all respects similar to the first, except that the dog lived nine hours. In the third experiment two ounces of a saturated solution of the white oxide of arsenic were given by the stomach, after section of the pneumogastrics, the dog dying three hours afterwards. The stomach and intestines are said to have been slightly inflamed, but to have contained no mucus or watery fluid. Sir Benjamin Brodie, in the fourth instance, divided the nerves just above the cardiac orifice of the stomach, and consequently below the origin of the pulmonary and cardiac branches. After the operation the respiration was perfectly normal. The dog was now inoculated in the thigh with arsenious acid. He died in a few hours with the ordinary symptoms of arsenic poisoning, except vomiting or purging. No watery or mucous fluid was found in the stomach or small intestine. A small quantity of mucus in the colon.

There are two sides to every question, and so far, in this study, we have seen but the one; there is, however, another.

Dr. John Reid, in his investigation of the pneumogastrics, repeated the experiments of Brodie, with, as he believed, opposite results.

His manner of experimentation seems to me to be somewhat faulty, although he claims that it is the only true method. He took two dogs in each experiment, one with the vagi entire, the other with them cut, killed them with arsenic, and then examined the intestines to see whether there was any difference in the amount of fluid contained, and on finding equal quantities, reasoned that there had been no arrest of secretion produced by the cutting of the nerves. Now, it is evident that if the uninjured dog had been purging freely, and the other not, the intestines of the latter might contain more fluid than those of the former, although secretion had been far less active. Especially is a doubt thrown over this method of experimentation, when it is remembered, in addition to the above, that it is wholly uncertain how much mucus was in the bowel of the dog before the section of the nerves and the subsequent poisoning. The experiments were five in number, and in only one (Expt. 40, Essay on the Pneumogastric Nerves) is it noted that diarrhœa was present after division of the nerves. Even in this it is barely possible there was some misapprehension, as the nerves were not examined at the autopsy to prove that they were actually cut. Still, it is most probable that this experiment gave an opposite result to those already detailed in this paper. All my experiments coincided, until over twenty had been made, when one occurred in which there was free purgation, and another in which there was some slight muco-fecal discharges after division of the nerves.

These experiments were as follows:—

Third Series of Experiments.

Expt. 26.—Dec. 15, 10 A. M. I gave by the mouth to a very large and powerful mongrel pointer 20 grains of calomel. 3 P. M. Has been vomiting and purging freely. Cut the pneumogastrics in the middle cervical region. The usual symptoms developed themselves. 5 P. M. Has recovered pretty well from the operation; no vomiting or purging since. Dec. 16. Dog quiet, although in pretty good condition. There has been no purging during the night. 10 A. M. Gave two boluses, containing together ten grains of *compound ex-*

tract of colocynth, two drops of *croton oil*, and five grains of *extract of jalap*. The dog swallowed them; of course they did not go fully down into the stomach, but, as they were soft, I conceive they must have melted and gradually been absorbed in the œsophagus, or found their way into the stomach. 2.25 P. M. There has been no purging or vomiting since 10 A. M. Have just given the dog 7 grains of arsenious acid, suspended and partially dissolved in about six drachms of water, injected into as many places in the cellular tissue of back and thighs. 3.30 P. M. Purged several times freely since 2.25; some very watery, some thick mucoid matter; some blood. I now gave 3 grains additional of arsenious acid in the same way as before. 4.30 P. M. Dog has purged once or twice since. Gave a solution hypodermically which had contained over two grains of veratria; some of the alkaloid, however, had probably been decomposed by a fungus growing in it. 4.45. Dog has exhibited most of the usual symptoms of veratria poisoning; had a single, very small passage from his bowels; profuse salivation; no vomiting; now lying on side, unable to stand on his feet. Dec. 16. Dog has purged freely during the night; is now dead.

Autopsy.—Stomach containing considerable fluid; its mucous membrane normal. Small intestine; its mucous membrane intensely congested; often markedly injected; the gut containing considerable fluid. Large intestine normal, except that it contains considerable liquid feces.

Expt. 27.—Dec. 15, 3 P. M. Gave by the mouth to a not very large, but very powerful and vicious male cat, 10 grains of *calomel*, and fifteen minutes afterwards cut the pneumogastrics. 5 P. M. Cat seems in good condition; no purging or vomiting. Dec. 16. There has been some purging during the night, consisting of very thick, gelatinous mucus, with a faint fecal tinge. 3.45 P. M. Poured into the mouth 6 grains of arsenious acid in dry powder, nearly all of which was swallowed. I also gave a bolus containing 1 grain of *podophyllin*, 5 grains *compound extract of colocynth* 2½ grains *extract of jalap*, and 1 drop of *croton oil*. How much of this actually found its way into the stomach it is impossible to state. A quantity of thick saliva and mucus came from the mouth, much of it very deeply coloured by the extracts. 5 P. M. Cat seems lively; no purging. Dec. 17, 10½ A. M. Cat still alive, but weak; there has not been any purging. Injected into cellular tissue a little over two drachms of *Fowler's solution*. 12½ P. M. In about the same condition as two hours ago; no purging. 4 P. M. Just alive. There has been some mucoid discharge from the anus, just enough to wet the surrounding parts.

Autopsy.—Dec. 18. Stomach containing considerable watery fluid; mucous membrane normal. Small intestine, containing in considerable quantity a thickish, yellowish, mucous liquid; mucous membrane in places intensely injected and inflamed.

Speaking of the different results obtained by himself and Sir Benjamin Brodie, Dr. Reid says:—

"We cannot pretend to account for the discrepancy between the results obtained in the experiments detailed above and those related by Sir B. Brodie. It is possible, however, that Sir B. had not taken the precaution of securing a free ingress of air into the lungs in the three experiments in which the nerves were cut in the neck, for it is stated in the first experiment the breathing of the animal was laboured and it died after three hours and a half. . . . . Whatever be the cause of this discrepancy, it is obvious that the *negative* evidence obtained by Sir B. Brodie cannot affect the value of the *positive* experiments we have detailed."

Probably no words have been more misused in physiological reasoning, or, indeed, in scientific reasoning generally, than *negative* and *positive*. Negative in one sense, the results of Sir Benjamin Brodie, are in fact, but in a higher and truer sense, they are positive, just as much positive as those obtained by Dr. Reid. If a poison be introduced into the system, possessing the power of invariably producing a fixed train of symptoms, and by any means such symptoms are prevented, the result is absolutely a *positive* one. Opposite results certainly were obtained by the different observers, but it is of no use to brand one as negative and pass it by. The true scientific sense will be awakened by such circumstances, not to ignore facts, but, if possible, to reconcile that which is apparently flatly contradictory. My experiments conclusively show that both observers were right, some of them agreeing with the one, some with the other. I think they are sufficient in number to prove absolutely that, after division of the cervical pneumogastrics, it is, in the majority of instances, impossible to purge, but in a few cases the normal action of the purgatives seems to be scarcely interfered with. The question is, Why is this? and the answer to this is evidently wrapped up in that of the question, How does the division of the nerves cause arrest of intestinal secretion?

It is, I believe, now generally conceded that section of the cervical par vagum arrests secretion in the stomach, and that, generally, the power of digestion is permanently destroyed. In certain instances, however, there is no such arrest of secretion in the stomach. This is precisely what I have found to be the case in the bowels, and it needs no elaborate argument to convince one that both depend upon a common cause, whatever that may be.

What then is this cause? To my mind but three plausible explanations presented themselves:—

First. The par vagum is possibly the direct antagonist of the contracting vaso-motor nerve of the alimentary canal, or, in other words, it is the dilating vaso-motor nerve of Bernard. This being true, it is evident that the cause in question is contraction of the capillaries after the section of the pneumogastrics by the unresisted contracting vaso-motor nerve, so as to prevent secretion.

Second. Shock.

Third. Accumulation of carbonic acid in the blood owing to the impeded respiration.

The former of these supposed causes is the one which first presented itself to my mind as very probably correct. The experiment of Bernard in which he cut the pneumogastrics of a dog, after having established a gastric fistula, has apparently direct bearing upon this point, for he found that the mucous membrane of the stomach instantly became pale and colourless when the nerves were divided.

The subject of the relation of the par vagum to digestion has attracted a great deal of attention, and in order to elucidate it, Magendie, Schultz, Bernard, Schiff, and others, have made numerous experiments. Several of these observers have many times cut the pneumogastric nerves just as they emerge into the abdomen from the diaphragm, and, therefore, after their cardiac and pulmonary branches have been given off. The results obtained have been somewhat various, digestion sometimes continuing, sometimes ceasing; the best observers, however, agreeing that secretion generally continues. The discovery of Brachet, that many branches of the pneumogastrics pass through the walls of the œsophagus and were consequently unharmed by the various experimenters, apparently accounted for this. Especially did this seem plausible, when it was found that if the œsophagus with the contained nerves was divided gastric secretion ceased. The facts brought forward in this paper to show that there is an arrest of secretion in the intestine as well as stomach after cervical section of the pneumogastrics, seem in themselves, however, enough to invalidate the explanation of Brachet, for the small intra-œsophageal branches, which by increased activity were supposed to do the work of the whole nerve in the stomach, certainly do not reach the intestine. There is not wanting, however, more positive experimental proof of the falsity of this theory. Prof. Schiff has shown (*Leçon sur la Physiologie de la Digestion*, vol. ii.) that section of the œsophagus close to the cardia, the nerves being carefully dissected off and left uninjured, is in itself sufficient to cause the instant and permanent arrest of digestion; and has also modified the experiment of Magendie, Bernard, etc., so as completely to meet the objections of Brachet, and at the same time avoid the disordering effects of section of the œsophagus. His operation consists in cutting down upon the cardia in the usual way, exposing and dividing the anterior and posterior branches of the pneumogastric, and then seizing the œsophagus between the finger and thumb as close to the diaphragm as possible, rotating it, and at the same time carefully dividing it down to the muscular coat, which is left intact. In this way the nerves are all divided, and at the same time the œsophagus left practically unhurt. Prof. Schiff has repeated this experiment a number of times, always with the one result. He has assured himself, in the most positive manner, that there is no suspension whatever of digestion, even during the first twenty-four hours. Founding his opinion upon these experiments, he concludes that the arrest of secretion in the stomach is due simply to the disturbance of the circulation and respiration. At first this conclusion was not satisfactory to my mind, especially as I was slow to conceive how such disturbances could modify the action of the glands of the bowels. In order to satisfy myself whether the par vagum was a vaso-motor nerve or not, the following direct experiments were instituted. As a local stagnation in the circulation from capillary contraction would of necessity modify the rapidity of absorption, the first experiment was directed to discover whether section of the par vagum has any influence upon intestinal absorption.

Fourth Series of Experiments.

Expt. 28.—Very large powerful male cat, and much smaller female cat. Dec. 13, 11 A. M. Cut the pneumogastrics of the large cat. 2.54 P. M. Seems pretty well, but breathing noisily, and with slow, laboured effort. Without giving an anæsthetic I opened abdomen in linea alba, and, exposing small intestine, placed in it a pill containing $\frac{1}{4}$ grain of strychnia. 2 minutes. No perceptible effect. 4 minutes. Cat apparently feeling the poison; standing erect with some stiffness. 7 minutes. Just seized with violent tetanic convulsions, in which he died. 3.5 P. M. Put smaller cat under the influence of ether; opened abdomen in linea alba, and placed a pill, in all respects similar to last, in small intestine. 2 minutes. No effect visible. 4 minutes. Perhaps some stiffness. 6 minutes. Marked tetanic stiffness of all the muscles. 8 minutes. Stiffness persisting, with constant convulsive shudders. 10 minutes. Same condition. 12 minutes. Cat dead, without any wild convulsions.

Remarks.—This experiment shows that it makes very little difference in the rate of intestinal absorption whether the pneumogastrics be entire or divided. The reason the injured animal died in the shorter period of time is probably not that absorption was more rapid, but that the breathing was already so much interfered with that death occurred from suffocation in the first convulsive paroxysm. The length of time from the administration of the poison to the appearance of the first symptom was as nearly identical as possible in the two cases.

Expt. 29.—Dec. 1st, 4 P. M. Cut pneumogastrics in the middle cervical region of a full-grown female cat. Exposed the small intestine; inserted a suture through it, and at the spot injected two and a half fluidrachms of the linimentum cantharidis into the gut, which instantly became deep red. I now replaced the intestine, and sewed up the wound. 5 P. M. Cat still living. Dec. 2d. Died some time during the night, without purging or vomiting.

Autopsy.—The small bowel was remarkably red, especially near point of injection. The colour was darkish rather than bright, but still marked. On opening gut it was found to contain a considerable amount of thick whitish mucoid substance. On washing the mucous membrane it was found not so red as the outside of the bowel, often pale, grayish ashy. In no place was there any injection of the mucous membrane.

Expt. 30.—A full-grown cat. Abdomen opened, suture inserted into the intestine, and fʒijss of linimentum cantharidis U. S. P. injected. During the night the cat got out of the box in which she was placed, and in the morning was found dead with bowels protruding. Small intestine a very deep red, both externally and internally; the epithelium of the inside had the same grayish ashy appearance noted in previous experiments. Bowels more intensely red than in Experiment 29.

Expt. 31.—Jan. 26. Under ether exposed and cut the pneumogastrics in the neck of an adult female cat. At 4 P. M. opened the abdomen and injected into the small intestine about two fluidrachms of linimentum cantharidis, in which two Chilian peppers had been soaked. At another place two Chilian peppers were introduced into the small intestine through a slit, which was then sewed up, and the bowels were replaced. 6 P. M. Cat seems pretty lively; no purging. Jan. 27. Died during the night.

Autopsy.—Small bowels nowhere very intensely reddened; in some places injected, containing a considerable quantity of a semi-fluid mucoid substance smelling strongly of turpentine, which probably was largely the injected material. There was no injection of the mucous membrane at the position of the peppers, although considerable blood, which almost certainly had oozed into the bowel from the cut.

Expt. 32.—Large female cat. Present Dr. McQuillen, Professor of Physiology, Philadelphia College of Dentistry, and Messrs. Dixon and Chaninel, office students. Etherized the animal and, after cutting the pneumogastrics in the neck, slit open the small bowel opposite to its attachment to the mesentery, and applied a galvanic current of moderate intensity to the distal ends of the severed nerves. The colour of the mucous membrane of intestine changed from a pale whitish hue to a very decided reddish tint. The current was intermitted, and a fresh portion of the bowel on being exposed was found of the original pale colour. The current was then passed through the nerve again, and the mucous membrane again reddened. The current was again broken, a fresh portion of the bowel exposed, and again an increased redness followed a completion of the current. After this, however, the bowel failed to change colour, upon electrical stimulation. Dr. McQuillen, after the experiment was over, stated that he was thoroughly satisfied as to the change of colour in the mucous membrane of the intestine following the earlier application of the galvanism.

Expt. 33.—A large and old English rabbit. Under ether, cut down to the pneumogastrics and placed a string loosely around each, so that it could be drawn out of the wound at pleasure; at the same time the trachea was exposed and a tube inserted therein, for purposes of artificial respiration if required. Operation complete at 3.30 P. M., and the ether withdrawn. 4 P. M. The intestines were exposed by a median incision in the abdomen, through which the large bowel immediately protruded. It was laid open, the contained fecal matter removed, and the mucous membrane carefully washed with a soft sponge. After some minutes' exposure, the mucous membrane was decidedly red. The pneumogastrics were now pulled out of the wound and cut. In less than half a minute the bowel had become very decidedly pale; the change was marked, and persisted for fifteen minutes, when the animal was given what was supposed to be woorara, which produced in a short time violent tetanoid convulsions, and put an end to the experiment. No medical gentleman but myself was present. I asked my assistant—a very intelligent man—if there was any change in the bowel. He instantly replied, "It is of very much lighter colour." He knew nothing as to my expectations, whether there was to be any change, or, if so, of what nature.

Expt. 34.—Attempted to etherize a large cat, but had great difficulty in accomplishing it, and remarked to my assistant that I had never seen a cat resist an anæsthetic so long. However, she finally became thoroughly anæsthetized, and I cut down on the left nerve. At this time it was discovered we had been using *alcohol* for ether, so that complete anæsthesia had been produced by vapour of cold alcohol. The abdomen was now opened. Peristaltic action was completely suspended in the bowels, reappearing, however, readily when the galvanic current was applied to them. When left to themselves they were always relaxed, perfectly passive. The small bowel was laid open, and the pneumogastrics cut. No change was perceptible in the colour of the mucous membrane on division of the nerves. The distal ends of the divided nerve were now galvanized, at first with a very weak, afterwards with a much stronger current. Respiration was very sensibly affected, but no change whatever was perceptible at any time in the colour of the mucous membrane of the bowels.

Expt. 35.—Full-grown English rabbit. Under ether the pneumogastrics were exposed without cutting them. The abdomen was now opened and a portion of the small intestines drawn out. The animal was then allowed to lie for half an hour, the intestines being covered with a wet sponge, until the effects of the ether had passed off. The intestine was now laid open, and after four or five minutes a very mild induced current was passed through the uninjured pneumogastrics. At first no change; in two or three minutes darker points became apparent, and in five to ten minutes the whole intestine became markedly darker. After ten minutes the pneumogastrics were cut; the bowel, however, scarcely changed. My assistant said he could see no change whatever. I thought it became a shade lighter, but was not positive. Galvanizing of the distal ends of the cut nerves for some five minutes produced no change whatever in the bowel. The proximal end of one nerve was also galvanized for a couple of minutes without effect. The currents used were very weak, but sufficiently powerful to influence respiration in a marked manner. No interference with the heart's action was apparent.

Expt. 36.—Full-grown English rabbit. Under ether cut down and exposed pneumogastrics in the neck without injuring them; then opened the abdomen and dragged out the intestines. I now waited half an hour until the effects of the ether had thoroughly passed off, and then slit open the small intestine opposite its attachment to the mesentery. There was some bleeding, but it stopped on the application of a little cold water. Five minutes after this a tight ligature was placed around each pneumogastric. This apparently caused great pain, and the animal struggled violently. In two or three minutes the nerve was cut. Owing possibly to struggles the bowel *reddened* very decidedly after section of the nerve, and it *continued so* after the animal became quiet. Five minutes after this we galvanized the proximal ends of the nerves with a mild induced current. For some time no change was perceptible, but afterwards the bowel became somewhat lighter coloured, and persisted so until experiment closed. The peristaltic action of the bowels was apparently not affected by section of the nerves being about equally active after as before. There was apparently some increase in its activity upon galvanizing the nerve, but this seemed more of a coincidence than an effect.

A careful study of these experiments will, I think, convince any one that there is no direct connection between the pneumogastric nerve and the abdominal circulation. Experiment 28 shows, as already stated, that intestinal absorption is not affected by division of the cervical par vagum. The 29th demonstrates that important changes can be produced in the intestinal circulation by local influences after division of the nerves. In the 31st experiment the reddening was not so marked but still was quite apparent. Experiments 32, 33, 34, 35, and 36, taken together, I think prove that neither division of the nerve, nor galvanization of either of the cut ends, has any fixed effect upon the intestinal circulation. In some cases there was some effect, but results were so often wanting, and when obtained were so often contradictory, that I have no doubt the changes in the colour of the mucous membranes were always either mere coincidences or were brought about indirectly, by the transmission of currents to other nerves, as has been shown to occur (Bernard, *Med. Times*, 1865, vol. ii.), or by effects upon the respiratory function, or upon the heart, or perhaps by exposure of the intestine, or in some other way, not readily discoverable.

Exactly how "shock" could cause a loss of power in the intestinal glands I do not understand, but it has suggested itself as an efficient cause. In order to test it the following experiments were instituted. They are not numerous, nor are they very decisive, but I think are sufficient to show that the intestinal effects of the division of the nerves cannot be accounted for by "shock" alone, although it very probably enters as one of the factors in the problem, and the sudden blanching of the mucous membrane of the stomach observed by Bernard was probably due to it. The experiments of Schiff upon division of the œsophagus corroborate the idea that "shock" has influence in the matter. As already stated, that observer found that cutting the œsophagus across low down was in itself sufficient to abolish gastric secretion.

Fifth Series of Experiments.

Expt. 37.—Etherized stout female cat, and by blows with the thick end of a heavy axe broke the thigh-bones of both hind legs completely, also the bones of the forelegs; in the latter there was a good deal of crushing, and from one considerable hemorrhage. 3.20. Cat has recovered from the ether; seems in good condition; administered hypodermically about gr. ss veratriæ sulphas dissolved in alcohol. 3.30. Making violent efforts at vomiting. 3.35. Vomiting violently. As the design of the experiment had been fully carried out, I now put an end to the animal's sufferings by a blow on the head with the axe.

Expt. 38.—March 1. At 3.50. P. M. tied the right carotid of a moderate sized cur. At 4 passed a ligature around the left carotid, without tying. 4.05. Dog has come out from under the ether to a considerable extent; tied the ligature tightly. 4.10. Dog sensible; perfectly quiet; immediately after the occlusion of the artery there was some stiffening of the muscles, and some apparently involuntary raising of the head; no convulsions. 4.12. Dog perfectly quiet; saliva dripping from mouth. Injected into cellular tissue of side about $\frac{1}{6}$ grain of commercial veratria in alcoholic solution. 4.20. Dog very restless, with a constant suppressed howl or moan. 4.30. Dog shows some indications of sick stomach. 4.35. Quiet. Repeated the dose. 4.40. Howling violently, and continued to do so for fifteen minutes. No vomiting, or purging, or convulsions. 5. Wild; biting; trying to get loose. Gave hypodermically, gr. $\frac{1}{6}$ commercial veratria. 5.15. Perfectly quiet; injected $\frac{1}{3}$ grain of the alkaloid. 5.30. Quiet; considerable salivation: heart beats 75 per minute. Injected into peritoneal cavity gr. $\frac{1}{6}$ of the veratria; immediately vomiting occurred without effort or straining a large quantity of partially digested food—a "puddeny" mass. Injected into cellular tissue of thighs gr. $\frac{1}{6}$ of the alkaloid. 5.40. Dog rigid all over; body bent forward very much; emprosthotonos; limbs stiff. 5.43. Dog relaxed; no convulsion; making constant violent efforts at vomiting; retching; straining; vomiting "dry;" no mucus or fluid rejected. 5.47. Retching still continues; very violent; mostly without any results; occasionally a little thick stuff rejected similar to that first thrown up. Heart beat 36. 6.10. Still alive, but no more; no vomiting or no convulsions since last entry; sometimes an apparent tendency to convulsions; he appears to be below the convulsion state; at times apparently dead.

Expt. 39.—March 9. 2.30 P. M. Gave a large male cat a bolus containing arsenic 3 grs., compound extract of colocynth 7 grs., gamboge 2 and a half grains, croton oil one drop. 2.40. Administered ether, and 2.45 tied left carotid. 2.55. Put a ligature loosely around right carotid. 3.10. Cat pretty well recovered from effect of the anæsthetic; tightened ligature; respirations immediately became panting, exceedingly rapid, 150 per minute; expression of face wild, anxious; a constant low, suppressed moaning; head constantly moving from side to side with a sort of slow, rolling vibration. 3.15. Untied the cat. He made no effort to walk, but laid on his side, with the same constant motion of his head. 3.20. Breathing much more natural, not strikingly abnormal; when approached, cat shows desire to fight by spitting and growling, but makes no effort to get away or actually fight. Smart whipping has no effect on him; he will not attempt to rise or move forefeet save to alter their position slightly; when pushed forward with the foot he finally, however, rose and ran three or four steps and then fell, with limbs bent under him. There is some power in limbs, but great weakness as well as indisposition to move them. 3.35. Cat lying still, head erect; is roused with difficulty, but when finally pushed into getting up, can run quite well. 3.40. Cat pretty well, running about room some; no vomiting or purging. 4.30. Cat seems pretty well, but quiet, liking to creep into corners and cower there; has just vomited a considerable quantity of dark watery fluid, apparently discoloured by the compound extract of colocynth given some hours before. 5.30. No change; no more vomiting or purging. March 10. Still alive, and in pretty good condition. I am uncertain whether there has or has not been any purging during the night; certainly, if so, not more than a single passage; I think none. 10 A. M. Repeated the bolus. 12 M. Still alive; no vomiting or purging. 1½. Died some time after last visit; there has been no purging or vomiting.

Expt. 40.—March 9. 3.35. Administered to a young cat, apparently some nine months old, a bolus containg 3 grains of arsenic, 7 grains of compound extract of colocynth, 2½ grains of gamboge, and one drop of croton oil. 3.40. Tied the external jugulars; produced no very marked symptoms. 3.50. Seems in good condition; howling loudly, and trying to get away. 5.33. No change; no vomiting or purging; cat howling. 10. Still alive. March 10. Cat died during the night; there was evidently free purging.

The question which next suggested itself for investigation was, Is the arrest of intestinal secretion after division of the pneumogastrics in the neck dependent upon disturbances in the respiratory function? That it cannot be owing solely or chiefly to the lessening of the heart's power, is evinced by the fact that purgation frequently does take place when by other means the heart's action is lessened much more than it is by the operation alluded to. That the latter does profoundly interfere with the lung functions and that after it there is during life a gradual accumulation of carbonic acid in the blood, admits of no dispute. Now, if it can be shown that such an accumulation is in itself sufficient to check secretion, a great advance will have been made towards the solution of the problem. The following experiments were therefore instituted. They are in two series. In the first, measures were adopted to more or less completely suspend the action of one lung, and then purgatives were administered. In the second, the action of the medicines upon animals exposed to an atmosphere loaded with carbonic acid gas was studied. It is evident that in the first set of cases "shock" entered as a possible factor, whilst in the latter it was altogether excluded.

In exposing cats to the gas an apparatus was used which commended itself by its cheapness, portability, and efficiency. An ordinary candle-box, with a sliding lid, was knocked to pieces, and its joints made tight by nailing them very closely and forcibly, with a strip of flannel between the boards. A pane of glass was set into the lid and a hole bored into the side of the box near the bottom. Into this a cork was placed which was fitted with a luted glass tube, such as the chemist frequently uses. Another hole was bored in the side near the top of the box at the opposite end to the first hole. A cork fitted this upper opening so that it could be opened or stopped at pleasure. The box was now connected by an India-rubber tube with a bottle or flask in which some carbonate of soda had been placed, and the apparatus only needed the addition of an acid to the latter to be in action.

Sixth Series of Experiments.

Expt. 41.—2¾ P. M. Pregnant cat. Made an incision on left side and forced a silver grooved director into and through right pleural cavity until it rested upon the vertebral column. Then inserted a tube in its place and pumped in air until cat was swollen like a drum. No bleeding of any moment. 3 P. M. Gave hypodermically about 2 grains of arseniate of potash. 4 P. M. No vomiting or purging; repeated operation; gave gr. j additional. 4.15 P. M.

Gave gr. j additional. 4.30 P. M. Gave 2 grains more of the arseniate. 5 P. M. Cat just purged once with some effort; very loose; not very large discharge. 6.15 P. M. Cat dead.

Autopsy 15 *minutes after death.*—Cellular tissue almost everywhere infiltrated with air. Stomach filled with frothy liquid. Right lung not cut; congested; in places very darkly and looking as though bruised; heavier than the other lung and less crepitant; not collapsed.

Expt. 42.—Feb. 4. 4.10. Made a free incision in a large male cat on the right side near the sternum down to the ribs, and cut obliquely through one of these, making an opening into pleural cavity sufficiently large to introduce the finger. 4.15. Right lung pretty well collapsed, ascertained by introducing finger. Breathing laborious. Passed a cord very tightly around the chest in two places, so as to completely prevent thoracic breathing. 4.20. Cat well recovered from effects of the ether. Injected in four places into the cellular tissue two grains of arseniate of potash in half fluidounce of water, and half a grain into peritoneal cavity. 4.30. No change in condition of the animal. Breathing laboured, deep, abdominal. No vomiting or purging. 5. No change. Cat has been able to howl some. No purging or vomiting. Gave hypodermically gr. $\frac{1}{8}$ of commercial sulphate of veratria in solution. 5.15. Cat apparently dying of suffocation. Cut the string binding the chest. 5.17 Revived, got up and walked some steps, tottering considerably in so doing. 5.25. Had a convulsion, leaping some six or eight inches backwards, three or four inches from the ground. 5.30. Gave hypodermically gr. $\frac{1}{4}$ commercial sulphate of veratria in alcoholic solution. 5.35. Just dead.

Autopsy immediate.—Heart still beating. Stomach filled with a little frothy liquid. Small intestines very dry, almost no mucus in them. Arteries and left ventricle full of black blood.

Expt. 43.—Feb. 11. 3.40. Put a kitten apparently eight months old, under the influence of ether, and divided the cord between the third and fourth lumbar vertebræ. Collapse of respiration came on immediately; the heart kept beating rapidly, but breathing ceased almost entirely, and the kitten was at one time apparently dead. Cold water was dashed against her face and she began to breathe again. 3.50. Kitten showing signs of consciousness; paralysis perfect in posterior portion of her body. 4. Able to pull herself with her forefeet, going round and round and round, with her hinder end for a pivot. Administered hypodermically one-sixth of a grain of commercial veratria. 4.10. Pulling herself forward; seems well and strong. Gave gr. $\frac{1}{6}$ as before. 4.20. No change; no vomiting. 4.25. Saliva running freely from mouth and some gagging; breathing excessively hurried, very shallow, thoracic. No vomiting. 4.30. No decided change; mewing feebly; good deal of salivation. 4.35. Breathing as before, exceedingly rapid, irregular, shallow, 160 per minute. No change; no vomiting. I was now forced to leave the animal to my assistant, who informs me she was seized at 4.40 with violent convulsions, which recurred frequently until her death, which took place at 5.30. No vomiting or purging occurred.

Expt. 44.—3.20. P. M. I made an oblique incision an inch long over the right lung near the sternum, cutting through the cartilages of two ribs, of an impure black and tan terrier. Immediately dyspnœa was very marked. There was considerable arterial hemorrhage, but not enough to seriously affect the animal. 3.25. By means of a Wood's syringe threw into the peritoneal cavity one grain of arseniate of potash, dissolved in a fluidrachm of water, and directly after 3 grains in six different places, in the cellular tissue of thigh, flanks, sides, and back. 3.25. I bound a cord tightly around the chest so as to totally suspend thoracic breathing. Very great distress and laboured respiration was the result. In about five minutes the symptoms of suffocation were so urgent that I thought I would have to take off the string, but they abated somewhat, and the string was not removed until just before death. The breathing was always exceedingly laboured and almost completely diaphragmatic. 3.34. Administered two grains additional of the arseniate of potash, dissolved in water, injected into the cellular tissue in four different places. No vomiting or purging as yet. 4.10. No vomiting or purging as yet. Efforts at breathing very laboured. Dog evidently very ill. 4.30. No especial change in symptoms except dog apparently weaker. No vomiting or purging. 4.45. No vomiting or purging. Dog dying.

Autopsy immediate.—4.46. Right lung thoroughly collapsed. Heart still beating feebly and irregularly; distinctly two auricular to one ventricular systole. Left ventricle, aorta, and other arteries containing very dark blood. No bright aerated blood in the arteries. Intestines with the mucous membrane sometimes reddened; containing considerable mucus, but not enough to drop from them when cut, except perhaps in one or two spots; in some places dryish. Peritoneum contains considerable fluid.

Expt. 45.—Feb. 7. 4 P. M. Etherized a large male cat and exposed the ribs freely on left side; then made a long transverse incision into the pleural cavity, cutting through two ribs. 4.10. Cat having well recovered from the ether, gave him hypodermically one-sixth of a grain of commercial veratria dissolved in alcohol. 4.18. Bound a cord tightly once around the chest so as partially to suspend thoracic breathing. 4.25. Quiet. No vomiting or convulsions. Breathing very laboured. 4.30. Gave one-sixth of a grain of commercial veratria hypodermically. 4.35. Cat has had a formed passage from bowels, and appears to be making efforts at vomiting. 4.37. Vomiting. 4.40. Vomiting again. In this vomiting there has been little or no discharge from the stomach. No forcible pouring out of greenish fluid, such as is seen ordinarily in veratria vomiting. 4.48. String removed. 4.50. One-sixth of a grain additional given and cat placed in the carbonic acid box and the gas allowed to flow in freely. 5.20. No vomiting since being put in box. Still alive but unconscious. I now took him out and killed him with a blow on the head.

Seventh Series of Experiments.

Expt. 46.—Feb. 6. 3.15 P. M. Injected into the subcutaneous cellular tissue of a powerful male cat, one-half grain of commercial sulphate of veratria, dissolved in alcohol. The cat was then put into the box. 3.18. Struggling and fighting. 3.20. Lying on side perfectly quiet, with deep laboured breathing, 30 per minute. Taper goes out immediately when plunged in the box. 3.30. No change; no vomiting or purging. 3.35. Injected subcutaneously one-third of a grain of commercial sulphate of veratria. No vomiting or purging as yet. Salivation considerable but not nearly so profuse as generally under the influence of veratria. 3.40. Quiet; breathing deeply; somewhat rigid. Nothing at all like convulsions. 3.50. Cat died without vomiting or purging. Somewhat rigid. Died in an atmosphere in which taper was instantly extinguished.

Autopsy five minutes after death.—Stomach empty. Bowels containing a moderate amount of mucus. Peristaltic motion exceedingly active, more so than I remember ever to have seen it before; constant and active without stimulus; when intestine was cut across expelling the little contained mucus with violence through the cut.

Expt. 47.—Feb. 5. 12.35. Injected into cellular tissue of a powerful female cat, a little more than the eighth of a grain of commercial sulphate of veratria, dissolved in alcohol. Put the beast immediately into the box. 12.30. Taper goes out immediately in box, but cat struggling yet. 12.45. Has been lying perfectly passive on side for some time; breathing deep, laboured, 28 per minute; mouth open, tongue hanging out; pupils widely dilated; taper plunged in box instantly goes out. 12.50. No change. Salivation profuse, wetting every part of the box near the head; no vomiting. 12.55. Breath rate 26. No change; cat perfectly motionless save breathing. 1.15. No new symptoms or change. Atmosphere of box all the time containing sufficient carbonic acid to extinguish taper when brought into it. 1.20. No change. 1.25. No vomiting or purging as yet. No new symptoms. 1.30. No change. 2. No change. No vomiting. Salivation excessively profuse. Taper goes out. Injected into cellular tissue one-sixth of a grain of commercial sulphate of veratria, in alcoholic solution. 2.15. No change in cat or air of box. 2.30. Gave hypodermically one-sixth of a grain of commercial sulphate of veratria. 3.10. Took the cat out of the box, where she had lain perfectly passive. 3.15. Cat in convulsions, unable to stand, but lying on her side. 3.20. Almost constantly convulsive, or at least constantly and paroxysmally, kicking into air: occasionally some opisthotonos, still a good deal of salivation. Pupils still widely dilated. 4.00 Constant convulsive movements. Still considerable salivation. No vomiting or purging. Pupils widely dilated. 4.30. Knocked the cat in the head.

Autopsy.—Stomach empty. Intestines empty. Arteries and left ventricle containing dark blood.

Expt. 48.—Feb. 7. Injected into the cellular tissue of a powerful male cat, by means of a Wood's syringe, $\frac{1}{6}$ of a grain of commercial veratria dissolved in alcohol, and immediately placed animal in the carbonic acid box 5 minutes before 4 o'clock. 4.15. Restless; paper burns feebly in the box. 4.20. Quiet; breathing labored. 4.25. Exceedingly restless, apparently in a convulsion. Carbonic acid gas now passing in more freely. 4.28. Quiet; breathing laborious, feeble; no vomiting, but a moderate amount of salivation. 4.30. Nearly dead; perfectly unconscious and relaxed. Dragged her head out of the box; mouth open, tongue hanging out, lips pale; pupils alternately dilating and expanding without any reference to the intensity of the light. 4.34. Revived, able to raise his head up, look about, and apparently make an attempt to bite; suddenly seized with a violent vomiting fit. Returned him immediately to the box, and allowed carbonic acid gas to flow in freely. 4.40. Quiet; breathing laborious. 4.45. lying on side, breathing slowly and laboriously, apparently perfectly unconscious; tongue out: a moderate amount of salivation. No vomiting since return to box. 4.48. Dead, without vomiting since return.

Autopsy, within five minutes after death.—Peristaltic movements of intestines exceedingly active; they being constantly vermicularly moving on exposure to the air, and a touch of the knife throwing them into all sorts of contortions and writhings. Intestines dry, containing no mucus. Stomach with a small amount of watery fluid.

Expt. 49.—Feb. 5. 11.15. Gave hypodermically to a large female cat $\frac{1}{8}$ of a grain of commercial veratria dissolved in alcohol, and put the animal immediately in box 11.20. Breathing exceedingly laboured, deep. 11.30. Struggling violently, it was impossible to say with certainty whether convulsively or voluntarily; she kicked, doubled on herself, etc., violently in the narrow box. 11.35. Some violent struggles. 11.45. Opened box; cat appeared very much under influence, but still kept her head up. 11.48. Box lid has been entirely off for five minutes, and cat shows evident signs of coming up from her semi-asphyxiated state; taper burns freely at bottom of box. Cat just seized with sudden violent vomiting of greenish mucus. 11.50. Vomiting again violently. Took the cat out of the box and undid the cords that bound feet together; cat was able to walk pretty well. 12.30. In last half hour has vomited freely several times. 1.10. Injected into cellular tissue 3 grains of arseniate of potash dissolved in water, and put cat back in the box. 2 P. M. have been away; box wet all round head, cannot say certainly whether merely from saliva or from vomiting; has had a formed passage. 3. Convulsive seizures; has been quiet before, since 2 o'clock, in convulsions; muscles work disjointedly, often more twitchings than convulsions—often without movement of the limb. 3.10. Dead; no purging save a little fecal mucus, say a teaspoonful.

Autopsy.—3.20. Intestines deep red, containing a large quantity of mucus. Stomach full of frothy liquid. Heart not beating, not irritable to knife; left ventricle with dark blood, not absolutely black. Lungs pinkish, congested. Peristaltic motion of bowels marked 15 minutes after death, 10 after exposure to air; constant twitchings of muscles right behind thigh and leg, with occasionally jerking of the paw, continuing 25 minutes after death, 20 after opening thorax and abdomen.

In series No. 6, there are five experiments. In the first of these a lethal dose of arsenic produced some slight purging, consisting of but a single loose passage. It is evident that this was not nearly so great as should normally be produced by the drug. There can be little doubt but that I failed in this case to open freely the pleural cavity. The air which was pumped into the animal located itself in the cellular tissue and not in the pleural cavity, and the autopsy showed that the lung did not collapse. There was, it is true, a good deal of embarrassment of the respiratory function, just enough apparently to check, but not entirely to suspend the action of the intestinal glands.

In Experiment 42, suffocation was certainly a very efficient agent in producing the death of the cat. The blood after death was everywhere highly carbonized. During life there was no purging or vomiting, although both veratria and arsenic were freely administered. Experiment 44 is very similar, and in every way confirmed the preceding. It differs only in the circumstance that arsenic only was used.

Experiment 43 is chiefly interesting in confirming, as far as it goes, the others, and in showing that veratria may produce convulsions even when it is prevented from vomiting. The shock caused by a section of the cord manifestly, however, prevents much reliance being placed on the experiment as proving that an interference with respiration is an interference with intestinal secretion.

In Experiment 45 an apparent contradictory result was obtained, yet the vomiting was by no means so severe as it normally is, after the use of such doses of veratria. There is no certain gauge in such experimentation as to how far the lung function is interfered with, and it seems to me that as there was an actual diminution of the gastric action of the poison, the results obtained really strengthen rather than weaken the testimony of the other experiments. The amount of respiratory disturbance was certainly not so great as in some other cases, and the vomiting was entirely checked by a carbonic acid atmosphere.

The experiments of series No. 7 are even more decisive and reliable in their testimony on the influence of an excess of carbonic acid in the blood upon gastro-intestinal secretion, since the equation is reduced to its simplest form.

In Experiment 46, a cat, kept in an atmosphere loaded with carbonic acid gas, receives hypodermically nearly a grain of commercial veratria, and dies 35 minutes after receiving the first $\frac{1}{2}$ grain without vomiting, and on opening the stomach and bowels, they are found in about a normal condition.

In Experiment 47, two doses of veratria, $\frac{1}{6}$ of grain each, are administered, and the cat is kept profoundly under the influence of the gas; no vomiting whatever occurs. Twenty minutes after the last dose and about two hours and a half after the first $\frac{1}{6}$ of a grain, the cat is taken out of the box, but never sufficiently recovers to be able to stand, or for her pupils to become natural. After severe convulsions she is killed, and the stomach and bowels are found empty.

In Experiment 48, a cat, into whom $\frac{1}{8}$ of a grain of veratria has been injected, is kept in an atmosphere loaded with carbonic acid, and shows no signs of vomiting. He then is allowed to breathe fresh air, and as soon as he comes pretty well out from under the gas, vomits violently. On his being thrust back into the box, the vomiting ceases and does not recur. At the autopsy the stomach contains but a small amount of liquid.

Experiment 49 is very similar to the last. So long as the animal is strongly under the influence of the gas the veratria fails to provoke secretion and vomiting, which, on the other hand, appear just so soon as the effects of the carbonic acid pass off. A lethal dose of arsenic failed to produce any purging, although at the autopsy a considerable amount of mucus was found in the intestine, showing that secretion had to a certain extent been excited. The explanation of this, I think, is to be found in the imperfect narcosis produced.

The experiment, although placed near the last in this series, was in reality the first made, and I had not learned the best way of managing the apparatus, and did not keep up the necessary steady flow of the gas. That the narcosis was not complete was shown by the pinkish colour of the lungs and the partially arterialized blood found after death in the left ventricle.

The experiments of these series seem to me, when studied one with the other, to prove conclusively that an excess of carbonic acid in the blood is capable of lessening, and when carried beyond a certain point of altogether preventing, in most instances, emesis and purgation. In doing this, the poison does not merely arrest the muscular movement necessary to the performance of those acts, but actually arrests secretion. This is proven by the results of post-mortem examination, for if secretion continued and peristalsis was checked, there would be an accumulation of fluid in the stomach and bowels such as is said to be seen in certain cases of cholera.

Moreover, I think the experiments already detailed afford proof that the peristaltic action, although in some cases apparently checked by the anæsthetic, is not necessarily so. To aid in elucidating this point the following experiments were instituted:—

Eighth Series of Experiments.

Expt. 50.—Feb. 7, 3 P. M. Placed in the box a large female cat, pregnant, and let carbonic acid flow in freely. Died in about twenty minutes.

Autopsy within five minutes after death.—Opened her abdomen first. Peristaltic action of the bowels absolutely wanting; bowels relaxed, perfectly motionless. When pricked with a knife a local persistent contraction took place, forming a depressed constricted ring around the bowel. Pricking gave rise to no true peristaltic motion whatever. The constrictions spoken of sometimes lasted full two minutes, perhaps more. After between five and ten minutes' exposure to the air, peristaltic action commenced to appear. The cat was then thrown out doors, where the temperature was probably about fifty. Fifteen minutes afterwards the peristaltic movement was exceedingly active, the bowels worming and writhing spontaneously.

Expt. 51.—Feb. 5. Without in any way injuring it, I placed a young cat, apparently about a year old, in the carbonic acid box. After it had lain there about half an hour perfectly unconscious, I threw into the box a very rapid stream of carbonic acid gas. Kitten died in about 20 minutes.

Autopsy five to ten minutes after death.—Heart not beating but starting and beating a few strokes when vessels were cut across, and the blood choking it was allowed to escape. Blood everywhere very black. Peristaltic action of the intestines very evident, but rather sluggish. Some spontaneous movements on exposure to the air, and a certain, but rather slow and feeble response to pricking with the knife.

The experiments which have bearing upon the question of the influence of carbonic acid gas upon the peristaltic action of the intestine are then Nos. 46, 48, 50, 51. In the first of these the cat had been for half an hour in an atmosphere so loaded with carbonic acid that a taper, when brought near the box, was extinguished before it entered it from above, and dying in such an atmosphere, was examined immediately. In spite, however, of the everywhere present black blood, the intestines exhibited the most active peristaltic motion I have ever witnessed, constantly and rapidly writhing and twisting over one another. In Experiment 48 the exposure to the gas was not so prolonged, but it was, if possible, more intense, and the cat died, I believe, chiefly of suffocation, and here again peristaltic action was very active. On the other hand, in Experiments 50 and 51, the cats were undoubtedly killed solely by the gas, and in the former there was absolute abolition of the vermicular movements until after the exposure of the bowels to the air for fifteen minutes, and in the other the peristalsis was sluggish, although evident.

Putting these results together, I do not see how any other conclusion can be arrived at than that already mentioned, namely, that lethal poisoning with carbonic acid gas does not in all, or even the majority of cases, completely suspend intestinal movements.

The whole of the experiments, therefore, prove that carbonic acid gas in excess in the blood has the power of arresting intestinal secretion.

It seems well established by the facts and arguments previously adduced, that the failure of purgatives after cervical section of the par vagum, is not owing to any direct influence which the nerve exerts upon the intestine. That section of the nerve is followed by accumulation of carbonic acid in the blood is also well known. Taking these facts with the influence of the gas upon intestinal secretion just proven, it appears to be a logical inference that the impossibility of vomiting or purging after division of the nerves, is due to the accumulation of carbonic acid in the blood. My experiments with the gas, however, showed that in order for it to produce absolute arrest of secretion it must be in sufficient quantity to manifest very plainly its presence by other than gastro-intestinal symptoms, such as more or less complete unconsciousness.

Now after division of the pneumogastrics in the neck, the gas does not accumulate, at least until near death, sufficiently to do this. It is therefore evident that there must be some other cause or causes aiding it in controlling secretion.

"Shock" has already been shown to be a probable adjuvant, but is apparently not the only one. For its influence would scarcely endure, or, if it did, would diminish rather than increase, while the resistance to the action of emeto-cathartics mostly steadily persists until death takes place, mayhap several days after division of the nerves.

In those experiments in which the pleura was opened there was a similar arrest of secretion without profound carbonic acid narcosis.

It therefore being probable that there is some cause for the symptoms besides those enumerated, the question naturally arises—Is there any lesion to be found which, existing in a marked degree both among the results of cervical section of the pneumogastrics, in collapse of the lung from wounds, and in profound carbonic acid narcosis, is capable of acting efficiently in restraining intestinal secretion? Such lesion I conceive is the great interference with the circulation in the lungs, which occurs in each case, and, of course, backs the blood upon the right heart, then upon the portal circulation, and hence tends to prevent intestinal gland action by producing a more or less complete local capillary stasis. This, then, I believe to be a third agency in aiding the arrest of secretion in the bowels after division of the cervical pneumogastrics. That it is not the sole cause is evinced by the previously detailed experiments upon intestinal absorption, which prove conclusively that there is no absolute cessation of circulation in the intestines after the operation.

In conclusion, the results of this protracted study of the subject may be summed up as follows :—

First. The division of the cervical pneumogastric does, in the majority of instances, but not always, absolutely arrest free gastro-intestinal secretion, emetics and cathartics being absolutely powerless to produce it.

Second. That this arrest is not due to any direct influence which the nerve has upon the intestine or its circulation, but is owing to two or three causes: accumulation of carbonic acid in the blood, interference with the circulation of the lungs backing up the blood upon the portal circulation, and perhaps shock.

These things being granted, the opposite results obtained by Brodie and Reid are readily explainable.

It is well known that in a small proportion of cases division of the nerves does not induce the changes in the lungs ordinarily so fatal. In such instances there is no great accumulation of carbonic acid in the blood, nor is there any backing up of the blood in the pulmonary artery, and consequently upon the right heart, and finally portal circulation.

The secondary results of section of the par vagum—the actual causes of the arrest of gastro-intestinal secretion—are therefore wanting in these cases; and I believe it to be in such that emetics and cathartics act freely after division of the nerves. The rarity of such cases is the reason why those experiments are proportionately so few, in which such drugs act in their ordinary manner after the operation.

Art. X.—*Vesico-vaginal Fistules. Comparative Analysis of different Surgical Methods. Results, American and European.* By Nathan Bozeman, M. D., of New York.

To illustrate by clinical facts the legitimate surgery of the female genito-urinary organs, and to criticize operations, that hide without removing the evils against which they are directed, are the aims of this communication. It is a reply to Dr. Gustave Simon, Professor of Surgery in the University of Heidelberg,[1] in deference to whose claim of priority in the operation of Kolpokleisis (transverse obliteration of the vagina), we begin by withdrawing our own, made in 1867. It happens, however, that historical documents, overlooked by us both, attribute to French surgeons the initiative in question.

In 1845, A. Bérard,[2] after mentioning Vidal's occlusion of the vulva in 1833, says with regard to incurable vesico-vaginal fistules:—

> "I modified this method by incising the mucous membrane at the entry of the vagina, and dissecting up a cuff-like fold about two centimetres long, round the free border of which I passed a thread (as in Dieffenbach's purse-string suture). The ends of this thread I drew with a catheter through the fistule into the bladder and out of the urethra, puckering the fold of mucous membrane at its bleeding surface; then I faced the raw surfaces of the vagina below with three points of quilled suture. The urine still trickled through two minute fistules, at the patient's death some weeks later, from pleuritis and peritonitis."

Kolpokleisis here was not less completely effected than in the first operations recorded by Prof. Simon.

Bérard also cites Velpeau's treatment of a vesico-vaginal fistule, complicated with atresia vaginæ, as in Margaretha Hubert's case, the first in which Prof. Simon attempted kolpokleisis in 1855. Velpeau had failed to complete this closure with the actual cautery and suture, and the urine still dribbled away, as after Prof. S.'s two "doppelnaht" operations and repeated cauterizations. M. Lenoir had attempted to obliterate a vagina, otherwise normal, below the seat of a fistule. He had cauterized, with the hot iron, a complete circle of its walls, had applied the tincture of cantharides for their farther refreshment, and introducing a curved wooden tube into the previously dilated urethra, and a larger one into the rectum, had, by drawing their outer ends together, forced the two raw surfaces of the vagina into contact, and so held them, with a view to their adhesion, but this manœuvre failed of its object.

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[1] See his letter to the author in the Deutsche Klinik, Nos. 45 and 46, 1868, translated into the American Journal of Obstetrics, vol. ii., No. 2, 1869; and also translated into English, and circulated in pamphlet form, by Prof. Simon.

[2] Dict. de Méd., vol. xxx. p. 495.

A vesico-vaginal fistule having resulted from abuse of pessary in one of Dupuytren's observations, spontaneous atresia of the vagina had ensued below the fistule, and the catamenia were voided through the bladder. Carteaux had published another case like this, consecutive on a tedious labour.[1] Such were the facts, in view of which Bérard practised kolpokleisis at la Pitié, as above shown, to remedy a large loss of substance in the vesico-vaginal septum with hernia of the bladder into the vagina. He refreshed the surfaces with bistoury and scissors, but used the purse string and quilled sutures. Up to the 21st day the operation seems to have been an almost complete success, and the patient's death was due to other causes.

> "The reason," says our illustrious brother of Heidelberg, "why I have proved the validity of my claims of priority at such lengths, is simply this, that in my opinion kolpokleisis is the most important plastic operation which in the last decennia has originated from one single man. The operation of vesico-vaginal fistula by uniting the borders of the defect is indeed, in its present perfection and precision, a much more important acquisition than kolpokleisis and probably the greatest achievement of our century in plastic surgery; but it has not been carried to that perfection by a single man, but, on the contrary, operators of all nations have contributed their share to it. The "uranoplastic" of our ingenious countryman—von Langenbeck—could alone be placed by the side of kolpokleisis, as far as the safety of the performance and its immediate success are concerned. It would rank higher still on account of its more frequent occurrence, if its benefit for the voice in increasing its purity could be secured in all or in the majority of cases. But as in many cases this result is not obtained at all and in others only incompletely, kolpokleisis must be considered the more important operation, as in all cases it fully answers its purpose. This operation which I invented at the time when the obliteration of the vulva, proposed by Vidal, proved inefficacious in reëstablishing continence of urine, has already been performed more than fifty times with complete success. Through it many patients with incurable defects of the bladder have been freed of the most intolerable suffering, viz., the incontinence of urine. I have myself succeeded in eighteen cases in effecting perfect obliteration, and every German surgeon who practises the art of curing vesico-vaginal fistules, has recorded one or more successful cases of that kind."

In the autumn of 1858, a young negress, Jane F., aged 20, entered our private Infirmary at Montgomery, Ala., for the treatment of two fistules, one vesico-, the other recto-vaginal, the results of extensive sloughing the year before, and due to the usual cause, the pressure of the child's head in prolonged labour; for this distressing accident levies its tribute of suffering at the portals of maternity, and the primipara is, for obvious reasons, as in the case before us, its most frequent victim. On her first admission, she was operated upon by our former partner, Dr. J. B. Gaston, but without success. She came under our personal care January 1st, 1859.

Examination revealed the loss of the whole vesico-vaginal septum, with half the urethral portion of the vagina, leaving the pubic arch bare, $\frac{1}{2}$ or $\frac{3}{4}$

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[1] Journ. de Lucas Championnière.

inch on either side of the symphysis, while above, the cervix uteri had lost its infra-vaginal portion. The immobility of its borders, as well as of the womb itself, forbade any compensation for the loss of substance, by drawing down the womb to close the opening. The recto-vaginal fistule, two fingers in size, was oval, with its long axis transverse, and lay 2½ inches from the anus. At its lower border a hard unyielding band spread across the posterior vaginal wall. The lower border of this fistule became gradually mobile by dint of incisions and of dilatation, until it allowed coaptation of its refreshed edges beneath the button-suture, which completely protected them from the urine as it poured into the vagina through the large hole in the base of the bladder. Removal of the suture apparatus on the 8th day revealed complete closure of this fistule by union of its edges. To close the other chasm was impossible. By what operation might the distressful flow of urine be prevented? Already in a case analogous to this we had closed up the vulva, like Vidal, but found little advantage from that. The point in question was to convert the remains of the bladder and vagina into one common cavity. This object we effected by paring the anterior vaginal wall up to the corresponding border of the fistule and round to an equal extent upon the lateral and posterior walls. These raw surfaces were then buttoned together in a transverse line, and the vagina closed up to the fistule, thus leaving no pouch for urine below and avoiding that most serious objection to Vidal's operation of closing the vulva by an antero-posterior line of union.

Drs. Gaston, Norton, and other physicians, witnessed our transverse occlusion of the vagina in this case, with eight wire sutures, and a button 1¾ inches long, which, when removed on the 9th day, left the atresia complete. This was March 15, 1859, and from this time the patient retained and passed her water at will; it never dribbled away unless she neglected to void it for many hours. She lay dry all night without having to get up, and could walk about for three or four hours at a time without wetting herself. These advantages have been in great measure maintained during eleven years. We had frequent good reports of her during the first four; at the ninth she was in health and doing all the housework of a family. Dr. R. P. Means, of Hickory Grove, Alabama, has just seen her and replies to our questions as follows:—

> "Jane Finley is living and her general health is very good. She can retain her urine while walking about sometimes, but it occasionally dribbles. If when lying down she immediately answers the call to urinate, she can retain the urine long enough to get up and go out doors. She does not complain of any pain, but says that she used to retain her water much better soon after the operation on her than she can now."

It seems then that Time is growing envious of our success in the first only case of transverse obliteration of the vagina on our record, a case remarkable too as the first now living, in which complete occlusion was effected in the urethral portion of a vagina of normal dimensions, and after utter destruction of the vesico-vaginal septum. This result was obtained by a single operation with our button suture. Its record may be found in the January number of the *New Orleans Medical and Surgical Journal* for 1860. Full details of it were in the printer's hands when that Journal was suspended at the breaking out of the war. We at that time regarded it as unique and our method as original. Two cases mentioned by Dr. Sims in 1858[1] present, however, some analogous points. In the first, a part of the bas fond of the bladder had been destroyed along with the infra-vaginal cervix, and Dr. S. had united the vaginal walls about an inch above the urethra. This case would tally well with Prof. Simon's second topographical division of kolpokleidic operations.

In Dr. S.'s second case, only a small part of the neck of the bladder remained attached to the urethra. The mouth of the vagina was closed by uniting its posterior wall to the urethra as they lay in contact, leaving a pouch ¾ of an inch deep below the anterior border of the fistule, in which urine might stagnate and stone accrete, the same evils as result from Vidal's method.

In either of these cases the only complication arose from the loss of the infra-vaginal cervix. In one, the whole trigone remained intact; in the other, a part of it. The integrity of the urethra invited the soldering of the anterior borders of these fistules to the cervical stump by the button-suture, well known here at the time when Dr. Sims operated on them. With his clamp-suture, on the other hand, it would have been impossible to hold the two borders together long enough for union to be effected. This upper clamp would have rested, in the first case, across the stump of the cervix, on a plane far above the lower clamp which would have been imbedded in the soft tissue of the vagina, above the root of the urethra, a position compromising the success of the operation. In the second case, his upper clamp would have occupied the same position across the stump of the cervix, but the lower one would have been thrown directly across the root of the urethra; the womb could not then have been drawn and kept down long enough for closure of the fistule by union with its anterior border. The constant drag of the depressed womb upon the front clamp would have strangulated the tissues, and their slough would have left a mutilated urethra with a fistule much enlarged. If confined to the use of the clamp-suture, then, Dr. Sims' expedient became inevitable.

Prof. Simon's case, Maria B.,[2] presents a vesico-vaginal fistule as big as a cherry, high up in a normal vagina. Upon this Prof. S. operated often in vain, sometimes trying to close the fistule with his doppelnaht; at others, to obliterate the vaginal canal. At last he succeeded in closing the fistule, a result surely preferable to kolpokleisis for the patient, since the question for her was, vagina or no vagina? On the other hand, the surgeon's reputation could not suffer from success, however tardy, in his first and legitimate object. The first kolpokleisis completed in Germany appears to have been made by Prof. Wernher, of Giessen, who has recently imparted to us its instructive though sinister details, and the discovery of a stone in the vaginal pouch after the death of the patient.

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[1] Silver Sutures in Surgery, page 16.

[2] Ueber die Operation Blasenscheiden fistelndurch die blutige naht, p. 5, 1862.

This was the eighth kolpokleisis in Germany previous to our own operation in 1859. One of the eight was operated by Prof. Roser, of Marberg; the six remaining cases were Prof. Simon's. Let us now endeavour to fix the rational limit of application for this method of transverse obliteration, to which Prof. S. attaches so much value. Let him speak:—

> "Since the invention of kolpokleisis, however, I have not remained satisfied with that mode of operation, to which you still adhere. On the contrary, I have constantly laboured to perfect the method of operating; to multiply its chances of success, in the different parts of the vagina, and to render its indications more precise. Whereas I had, in my first cases, operated only in the lower parts of the vagina, and had repeatedly met with small remaining fistules which could not be brought to heal, such occurrences are now extremely rare, and I close, as the case may be, in any height of the vagina, and always immediately below the defect. Nay, in one case, where the fistule was high up in the fornix, I needed only one-half of the latter for the obliteration, thus preserving the vagina in its whole length. (See my *Beiträge zur plastischen Chirurgie*, Prag. 1868, fol. 216.) Moreover, whereas I used to consider kolpokleisis indicated only where very large defects existed, I have now limited this indication a good deal, having cured at later periods very considerable defects by uniting the borders of the wound by sutures, like these (⌒, T, λ, λ̄), by resorting to incisions along the sides and parallel with the sutures, and even by transplanting a flap from the vesico-vaginal wall. The size of a defect has, for the reasons enumerated, during the last five or six years not been in my eyes an indication for kolpokleisis. On the other hand, I have found among the large number of difficult and complicated cases which have come under my treatment, several in which it was either impossible, or too dangerous to unite the borders, so that here I resorted to kolpokleisis."

Here are his rules laid down for guidance in kolpokleidic operations, distinguished topographically[1] in three classes:—

1. Obliteration of the vagina in its urethral portion.
2. Obliteration of the vagina within the limits of the base of the bladder from the root of the urethra to the cervix uteri.
3. Obliteration of the vagina at the fornix, transversely, if the fistule be very large; oblique, if small and high up on either side the fornix.

His indications for kolpokleisis[2] are:—

1. Great loss of substance, making it impossible to bring the sides of the fistule together.
2. Inaccessibility of fistules, from their high position, from the inversion of their edges, &c.
3. Loss of infra-vaginal cervix and danger to peritoneum.
4. Hemorrhage into bladder, if severe, after operations.
5. Confinement by adhesions of the stump of the cervix uteri, inside the bladder, so that the catamenia escape through the urethra.
6. Atresia vaginæ above fistules, involving their posterior border, so that its orifice communicates between the vagina and bladder.
7. Atresia of urethra with one fistule above and another below.
8. Uretero-vaginal and uretero-uterine fistules.

Prof. S. remarks the greater difficulty of closing up the urethral portion of the vagina.

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[1] Beiträge zur Plastischen Chirurgie. Prag. fol. 216, 1868.

[2] Op. cit., p. 229.

Very curious is his treatment of uretero-vaginal fistules (*harnleiter-scheidenfisteln*). He makes a new fistule near the mouth of the womb, then obliterates the vagina just below the false passage between it and the ureter. This converts the upper part of the vagina into a pouch for the menstrual fluid, and for the urine of one kidney with a passage to the bladder through the small artificial fistule. No less novel is his management of the uretero-uterine fistules (*harnleitermutterfisteln*), which he claims to have met with. Here he closes the vagina higher up and just under this newly-formed fistule, so that the urine of the ureter implicated passes from the cavity of the womb through the cervical canal, and reaches the point of closure, whence the artificial fistule conducts it into the bladder. The menstrual discharge takes this same course. These operations both prevent impregnation and partially mutilate the vagina.

But most novel and startling of all is Prof. Simon's statement that the contact of urine is not prejudicial to the uterus nor to its menstrual function, that the confinement of urine in the vagina is innocuous, and the condition of patients with closed vaginas is satisfactory!

Calculi, says he, are not apt to form if kolpokleisis be complete. He attributes to an overlooked suture-knot, which served as nucleus, the only case of stone that he has met with.

These peculiar physiological views prepare us to appreciate the "cure" of eighteen patients, 17 per cent. of all his cases, by the closure of their . . . vaginas.

More than thirty other interdicts of this long suffering organ have been placed, as he tells us by other German surgeons, among them, Roser, Wernher, Wilms, Ulrich, Bardeleben, Wagner, Esmarch, Spiegelberg, and Hegar.

The details of these thirty cases not having been cited, we reserve our judgment concerning the expediency of the operations, and confine our remarks to Prof. Simon's.

Our attention having been turned to the treatment of vesico-vaginal fistules in 1853, the same year, it seems, that Prof. S. took up this subject, and having before the interruption of our female practice by the war and its consequences, in 1860, put on record forty-one cases, our opinions have not been hastily formed, and we feel it our duty to protest against the latitude of Prof. S.'s indications for condemning the passage of the vagina.

What is vesico-vaginal fistule? A solution of continuity, maintained in the vesico-vaginal septum by the passage of urine, the contact of which is a chief obstacle to the process of healing.

In what does the cure of a fistule consist? In the union of its edges without serious lesion to the functions of the bladder, vagina, or uterus. No result inferior to this is a true cure, however complete the continence of urine. This physiological standard should never be lost sight of in our choice of remedial methods. What is kolpokleisis? The conversion of the vagina into a urinal, with prevention of the sexual act and generative function, restricting the uterus to the part of an excreting organ. Per contra, it claims to obviate the incontinence of urine.

Of Prof. Simon's eight indications for kolpokleisis, we recognize as valid only the first one, viz., a loss of substance such as to prevent the coaptation and consequent union of the fistulous borders.

No loss of substance can prevent a cure so long as the womb can be drawn down to fill the aperture. In cases where this seemed impossible at first, it has gradually yielded to our daily tractions with polypus forceps on the cervix and stretching of the surrounding tissues, until the two sides of the fistule would meet. This once effected we feel confident of cure by our button-suture. Since its invention we have never had recourse to incisions, in order to relax tissues and take the strain off our sutures, as Jobert was so much in the habit of doing, and as Prof. Simon, after condemning it, has been fain to practise likewise. Even when a force of several pounds had been needed to bring the sides together, our button-suture has always sufficed to maintain them in apposition until their complete union. Incisions we apply only to the preliminary treatment of cicatricial bands, or to points of atresia, which, after opening, we dilate with tents, not attempting to close the fistule until we have removed, as far as possible, such obstacles.

All Prof. Simon's indications precited, except the first, have been met and overcome in our practice, without having recourse to kolpokleisis. At "uretero-uterine" fistules, indeed, we may place a point of interrogation, for their diagnosis does not appear to us well founded in the cases stated. Bérard describes such a case in full detail. He injected coloured fluids into the bladder, he introduced a probe into the cervical canal, and another through the urethra, so that it should strike the first, if a fistulous communication existed. He measured separately the fluid escaping from the vagina, and what escaped from the urethra; he smelt what escaped from the os uteri. Now such means may aid in ascertaining the existence of a vesico-uterine fistule, but they cannot determine whether the communication between the uterine cavity and the urinary apparatus occurs at a point beyond that of the normal contiguity of these organs. A fistule $x + y$, of track unknown, may exist; the precited means of diagnosis may fail to prove it vesico-uterine; they cannot, however, prove it uretero-uterine, and we have seen vesico-uterine fistules in the diagnosis of which they failed, because of the extreme smallness of the fistulous track and its valvular condition. We have been unable to pass a coloured fluid through it from the bladder in quantity sufficient to be seen in the cervical canal; nor could we pass a probe, however delicate, in the same direction, yet the two streams of urine, one from the vagina, the other from the bladder, always flowed separately. Was this a proof that the urine of the vaginal stream came from the cavity of the womb? Post hoc, ergo, propter hoc, will not answer here, as the linen test has frequently attested in our hands. By this test we have detected the precise situation of a passage between the bladder and the cervical canal, even when the fistule was too small to be seen by the strongest reflected light. In one case cured by us January 1869, the point of communication with the cervical canal was near the internal os and the fistulous track above, bounded only by the utero-vesical fold of peritoneum; this membrane was punctured while operating, but no serious consequences ensued. Here, even when the cervical canal was fully dilated, a strong reflected light failed to reveal the fistulous orifice, although while the patient lay upon her back, the urine flowed freely from the os externum. Now on mopping dry the cervical canal, and laying a bit of old linen on its anterior wall, its saturation showed at once the orifice at that point, by closing which we cured the patient.[1] No organ was injured, no function compromised by our operation.

A patient has recently come to us with a rent of the urethra half its length back from the meatus, and a small vesico-vaginal fistule, the remains of a large one thus far closed by Dr. Emmet, of the New York Woman's Hospital. The anterior lip of the cervix had been soldered to the root of the urethra by three operations with the interrupted silver suture. The womb was retroflexed, and the cervical canal, patulous, was about an inch from the urethral orifice and on a lower plane The cicatricial tissue resulting from these previous operations had to be removed, after which we closed the vesico-vaginal fistule by our first button-suture. Nearly all the urine still escaped through the split urethra and in the dorsal position; much ran back upon the anterior surface of the vaginal patch, formed by the cervix uteri, and so into the cavity of the womb itself. We closed the urethral rent at a second operation and restored control over the urine by mechanically raising the cervix above the urethra. Then she could retain her water very well while lying down, and tolerably when standing or walking. On removing the supporter, the cervix would drop again and the urine resume its course into the womb. In the knee and elbow position the urine was seen to flow from the cervical canal and we mopped out the cavity of the womb. This might have been supposed to be a uretero-uterine fistule, and had the urine not been seen running back into the cervical canal while in the dorsal position, its escape from the os uteri might have been attributed to a fistule either between the cervix uteri and bladder, or between the cavity of the womb and one of the ureters. That neither of such channels existed was proven by plugging the urethra and mopping the cavity of the womb. But had there been a small vesico-uterine fistule high up, with this patulous state of the cervix, the urine escaping into the latter would have reached the cavity of the womb, and the true fistule, escaping observation, might have been deemed uretero-uterine. Then the only way to get at the truth would have been to plug the os internum and to ascertain positively that no vesico-uterine fistule existed, which we can do by the linen test, and not otherwise, in our experience. The removal of the plug from the os internum would have let the contained urine escape and so proved the existence of a uretero-uterine fistule.

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[1] For the *linen test*, see our more extended notice in the Transactions of the New York State Medical Society, p. 154, 1869.

Of uretero-vesico-vaginal fistules we can speak from sufficient experience, having in 1856 adopted a simple and effective treatment, and since then found such fistules little if at all more troublesome than the common vesico-vaginal. Paring the end of the ureter implicated, we thrust a pointed blade $\frac{1}{4}$ of an inch up, and piercing it as well as the vesical mucous membrane, split them both down to the edge of the fistule. This gives the urine a fall into the bladder far enough from the united edges of the fistule, and leaves in the line of union the whole thickness of the vesico-vaginal septum. Were the fistule simply uretero-vaginal, the first step would be to convert it into a uretero-vesico-vaginal passage by incising the vesical mucous membrane. A uretero-vesico-vaginal fistule was brought to us for treatment a few weeks ago by the wife of a physician from the State of Kentucky, and was operated upon by us in presence of Prof. Boeck, of Christiania, Norway, and Drs. Lee, Jones, Richardson, and M. J. Moses, of this city.

Incarceration of the cervix uteri within the bladder is regarded by Prof. S. as an indication for kolpokleisis. In several such cases presented to us we have always disengaged the cervix and closed the fistule, restoring to the catamenia its natural outlet.

Atresia of the vagina above the fistule indicates, says Prof. S., that we should close the vagina just below it, leaving the fistule open between the bladder and the diverticulum, thus formed by the two obliterated points of the vaginal canal. Has the surgeon no better resource than this blind imitation of Nature?

In 1860 Dr. Faget, of New Orleans, placed under our care Madame B., of that city, who had a small vesico-vaginal fistule in the trigone, with atresia vaginæ between this and the cervix so nearly complete that only the smallest probe could pass. More than an inch of the canal was imperforate. This we partially reopened before attempting to close the fistule, but we could not succeed until we had completely dilated the vagina; then control over the urine was restored, and our patient six months afterwards became pregnant.[1]

In the annals of surgery, nay, even in those of psychology, we have met with nothing more astounding than Prof. S.'s assertion, by a gentleman of Prof. Simon's rank in our profession, that, after effecting kolpokleisis, the urine becomes healthy and does not harm the uterus, when we consider the deep pocket formed in the vagina with no other outlet than the small fistule into the bladder. These fistules, moreover, are very often found at the highest point of the vaginal pocket, thus favouring the retention of urine, which at every menstruation will be mixed with the blood of this eliminative secretion, an admixture which can hardly fail to promote decomposition and its irritative sequences. Would Prof. Simon attribute then, to the vaginal mucous membrane, the property of arresting fermentation, of preventing those well-known changes which urine undergoes when long confined in the bladder, forming earthy deposits, calculi, and acrid ammoniacal lixivia?

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[1] See New Orleans Med. and Surg. Journ., July, 1866.

In the academic discussion of Jobert's elytroplastic cure, Gerdy, who found it difficult to believe that a piece of skin adherent with a mucous membrane could bear with impunity contact with urine, said, "We know, indeed, that urine has the property of irritating, inflaming, ulcerating, and striking with gangrene whatever it touches, the vagina itself cannot become accustomed to it."

Velpeau remarks,[1] "When the fistule gives passage to urine continually, the vagina, the vulva, and the thighs, bathed in this irritating liquid, are inflamed, excoriated, and become the seat of cutting pains, sometimes of pustules and of ulcerations which at first aspect might be supposed syphilitic. The lips of the wound gradually become hard, callous, and thickened." What was the final result of kolpokleisis in the first complete success obtained by transverse obliteration of the vagina in Germany? Its operator, Prof. Wernher, of Geissen, replies to us December 12th, 1869, "My patient died last summer. At the autopsy, I found in the vagina above the seat of closure, a stone as big as a pigeon's eye." This completes the history.

Between Prof. Wernher's case and ours there is a difference in character, which explains the difference in results after periods of twelve and eleven years respectively.

In the first case a partial atresia preëxisting had been completed below the fistule by Prof. W., thus converting the vagina above the line of obliteration into a pouch for the retained urine. The accretion of stone which occurred here is a probable event in Dr. Sims' two cases, and in all that have this anatomical character. In our own kolpokleisis, on the contrary, we obliterated the remaining urethral portion of the vagina up to the anterior border of the fistule, leaving no other pouch above than that formed between the posterior vaginal and the superior vesical walls, with the urethra at the most dependent portion of the same, and the cervix uteri at the most elevated. Such are the conditions that expose least to retention of urine and to irritation of the genital organs.

The same objections apply in some measure to the practice of folding the cervix uteri and edges of the fistule inside of the bladder, as often done by leading surgeons. The vagina is here narrowed only in sections, and not necessarily incapacitated for its functions, but pouches are formed in the bladder. Several calculi, after such operations on the vagina, have been reported by Dr. Emmet, who advises vaginal lithotomy in connection with vesico-vaginal fistula.[1]

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[1] Leçons Orales, t. ii. p. 242.

"We have seen the existence of calculi in the bladder cause perforation of the septum. The formation has generally been subsequent to the operation for the closure of a fistula, through which means the nucleus has been furnished, and a pouch in which the stone first became encysted."

As a stone in the bladder may occasion a fistule by the ulcerative absorption of the vesico-vaginal septum, so may another fistule be occasioned by the pressure of a stone in the vagina after its occlusion, or else the adhesions may give way below at the point of occlusion, a result not improbable after complete kolpokleisis during many years. Under our treatment at this moment is a fair example of Nature's kolpokleidic operations, in which, after having covered up and hid away old lesions, she has left the parts in a state analogous to that of surgical obliteration. The results before us teach what are to be expected from the latter, and confirm the previsions of pathological chemistry.

Mrs. ——, of ——, Alabama, aged 23, a perfectly well-formed woman, after a first labour of eighty-four hours, March 31, 1865, lost by sloughing part of the lower third of her vagina, which, on healing, left a small urethro-vesico-vaginal fistule, and a recto-vaginal fistule higher up, with loss of control over the passage of either urine or feces. Under this persistent local irritation the vagina just below the urinary fistule continued, however, to contract, enfolding both fistules until by degrees she had regained control over the excretions. Her general health improved, but eighteen months after the first injury, and in the fourth month of a second pregnancy, she miscarried. Cystitis soon after set in, with a profuse discharge of bloody mucus. Five or six days of such painful inflammation continued, recurring at intervals of three or four months. It seemed to be provoked by the exertion of standing or walking too long. Still menstruation remained normal and general health fair, with increased retentive power. By the end of the third year her vagina seemed completely closed; she lay dry all night, and could be around in the day for several hours at a time without dribbling. But now came a change for the worse. Upon over-exertion she became conscious of a fulness, as though something in the lower part of the vagina was pressing to come away, with urging to micturate every few minutes. This trouble increased until it culminated in an attack of cystitis. The urine, now always turbid, deposited a thick, tough slime, and smelt very strong after standing a little while. A year ago fatigue in nursing a friend brought on a severe attack, and which continued a whole month. The sanguinolent, or brown turbid and offensive character of the urine has continued from that time with variations in degree up to the present date, at which we find it largely mixed with pus. During the past year her health has suffered much; she has become excessively nervous and her menstruation painful. A deep seated pain is assigned to the left ovarian region, and soreness is complained of over the whole abdomen. Since last autumn the flow has lasted but two days, and the epochs been retarded eight or ten

[1] Treatise on vesico-vaginal fistula, p. 217, 1868.

days. Excruciating lumbar pains coincide with the cystic exacerbations at intervals of only eight or ten days. She has repeatedly swooned from their severity and remained for hours unconscious. This unrelenting march in the gravity of her condition produced a state of anguish which, without positive derangement of mind, still urged towards suicide, but in this contention of spirit wiser counsels happily prevailed, and she has sought from the resources of surgery a salvation to which Nature has proved inadequate, although she had effected complete kolpokleisis, "*that most important plastic operation which, in the last decennia, has originated from one single man*"!!!

Actual state, March 10th, 1870.—The vagina admits only a No. 6 bougie. The urethra is closed half an inch from the meatus. The vulva is much excoriated with scalding on passage of urine, which has been the case from the first. Attempts to dilate the vaginal stricture cause extreme pain.

Preliminary Operations.—Our first indication being to restore the vagina, we proceeded after etherization, assisted by Drs. T. C. Finnell and J. H. Hinton, of New York, to cut deep into the cicatricial band, from $\frac{1}{2}$ to $\frac{3}{4}$ inch thick along its sides. Then we incised the posterior wall, introduced our speculum, and exposed the vagina above, which was deeply congested and dotted with little red spots over its anterior wall. A small urethro-vesico-vaginal fistule was brought into view just within the point of vaginal occlusion, and admitted a No. 4 bougie. The vaginal surface for nearly an inch above this point was studded with granulations that bled at the slightest touch. The neck of the womb was much enlarged and its mouth patulous. Pus escaped with the urine through a catheter in the bladder. We all three verified the purulent character of this discharge. The recto-vaginal fistule was reopened by our dilatation of the vagina. We shall reopen the urethral passage, and then close, first, the urethro-vesico-vaginal fistule; afterwards, the recto-vaginal fistule. Spontaneous atresia of the vagina had here restored continence of urine by drawing the small fistule up into the cicatricial band. The vaginal muscles could then aid the sphincter vesicæ in controlling the flow of urine through the urethro-vesical and vaginal orifices almost in juxtaposition. The urine, however, flowing into the vagina, had attacked its mucous membrane and the cervix, as betrayed by their congested, hemorrhagic, and patulous state. Endometritis and ovaritis had supervened upon the cystitis and vaginitis. The discharge of muco-pus tinged with blood is now about $\frac{1}{2}$ a pint in twenty-four hours. The subjoined analysis by a highly competent person, Dr. Wm. B. Lewis, of this city, was made on a specimen of the urine drawn at the last exacerbation of our patient's cystic trouble, which occurred a few days after the operation precited.

"*March* 18. Odour: pungent, aromatic. Colour and appearance: reddish, densely turbid. Sediment after standing: $\frac{1}{8}$ bulk of specimen, rather close, but light, of a brownish-white colour. Reaction: alkaline. Specific gravity: 1025. Earthy phosphates completely precipitated from supernatant fluid, but chlorides abundant. Albumen: $\frac{1}{2}$ of the whole volume. Microscopical: oil globules, minute crystals of triple phosphates, pus corpuscles, amorphous urate and epithelium from the bladder. No casts were found. If present they would be discovered with great difficulty, as the strongly marked chemical characters of the specimen cloak the organic sediments and render their microscopical characters indefinite.

"The objects discovered by the microscope are in great part such as are naturally observed in alkaline urines. The features of this specimen indicate that the cystitis from which the patient suffers is largely due to retained urine and pus. The large proportion of the latter accounts for the albumen present.

We should state here while the general character of the urine in this attack remained the same, as observed by the patient for months before this preliminary operation, there was marked amelioration in her sufferings. Only for a few moments at one time was the pain as severe as to cause swooning. The paroxysm was much shorter than usual, lasting only about two days, but the flow of mucus and pus continued the same as formerly, though diminished in quantity."

The patient's good constitution and the conservative reactions of her organism during the earlier stages of her traumatic malady, its continued and vigorous efforts for self-recovery, more frequent in ratio to the local irritation, in short, the whole picture before us confirming and elucidating the pathologic history, forbids us to attribute the decline of health or sympathetic sufferings to other than hydraulic and chemical causes, viz., the stagnation of urine retained in contact with mucous surfaces unprepared to resist its irritating salts, and whose exudations of protective mucus have but increased the mischief by accelerating putrid fermentation. To open a free passage for discharge of these morbid secretions is the first step dictated by experience towards removing their causes.

We do not exhibit the foregoing as anything more than the particular application of a general principle. Lesions apparently the same occasion different degrees of suffering in different patients. European, and especially German peasant women, may be more robust, more phlegmatic than our American women, but chemistry and mechanics are invariable. To their laws are due the fearful sufferings we have witnessed in case of spontaneous kolpokleisis, and we venture to suggest that if the luminaries of German surgery will descend from their Olympian heights, look up their kolpokleidic cases and look into them again, they will see cause to change the note of triumphant gratulation with which Prof. Simon announces his successful operations.

Art. XI. — *Traumatic Tetanus.* By Christopher Johnston, M. D., Professor of Surgery in the University of Maryland.

In offering the notes of two cases of traumatic tetanus treated successfully by conia used hypodermically, we would not claim for that agent a specific virtue; but we desire to show the more than coincidental subsidence of tetanic symptoms under its employment, and to recall attention to the effect of conia as antagonistic, or at least antithetical, to the symptoms of tetanus. Thus the tetanic spasm of the muscles is that of rigid tonic and constant contraction, never completely yielding in intervals during its progress, and finally giving way, if ever, just previous to the fatal event, or more rarely, by far, under the influence of remedies so various and opposite, that no other than the general treatment can be definitely expressed. Conia, on the other hand, according to the authority of Christison,

> "acts on the spinal marrow, prostrates nervous power, producing paralysis of the voluntary muscles, and kills by arresting respiration. In an animal poisoned by conia the senses are preserved as long as it breathes, while the heart continues to beat even after apparent death, and its action may be maintained for a time by keeping up artificial respiration.
>
> Conia, if used in poisonous doses, produces vertigo, nausea, faintness, a sensation of numbness and muscular debility; it acts as a mydriatic, causes difficulty of speech, delirium or stupor, tremens and paralysis, and ultimately occasions convulsions and death."

More recent observers, however, express themselves at variance with the views of Christison. Thus Guttmann says that on the stomach and intestines hemlock has scarcely any influence. It may produce nausea, vomiting, and diarrhœa, but such occurrences are not common.

In a case of conia poisoning in the human subject, observed by H. Bennett, and in all the experiments of Guttmann on frogs, there was produced gradual paralysis of the voluntary muscles, and then of those of respiration. But later observers arrive at these conclusions:—

1. The paralysis is certainly not due to the action of hemlock on the muscles. 2. Neither does hemlock paralyze by its effect on the spinal cord. 3. The first action of conia is upon the terminations of the nerves, yet after a time the trunks are themselves paralyzed. But the sensory or afferent nerves remain unaffected.

Schroff states that in a short time after the poison is taken the sight is dimmed and the pupil dilated; and in Dr. Bennett's case there was total blindness, but the hearing was but little, if at all, dulled.

Finally, Dr. Sidney Ringer, from whose *Handbook of Therapeutics* we extract the above summary, remarks that this remedy is not indicated in convulsive diseases dependent upon affections of the cord, such as tetanus and strychnia poisoning, for the effects of this medicine and the diseases just mentioned are not antagonistic. Thus Guttmann strychnized frogs, poisoned them to paralysis with conia, and yet failed to check in any degree the tetanic spasms produced by the strychnia.

In this last experience Guttmann seems to be borne out by the researches of Dr. A. Crum-Brown and Dr. Thomas R. Fraser on conia and its ammonium bases. These authors are of opinion that "normal conia" should be devoid of spinal action, although the hydrochlorate of methyl-conia paralyzes the motor nerves and the spinal cord, and Morson's conia produces complete paralysis of the motor nerves before or after complete paralysis of the reflex function of the cord, according as the dose is small or large.

Before proceeding further we would call attention to the fact, in opposition to the statement of Guttmann, that the sensory nerves remain unaffected in conia poisoning, that in the first of our cases treated with conia hyperæsthesia existed during an entire month. And we find in Guttmann's paper the reason for his failure to arrest strychnia tetanus by the employment of conia in poisonous doses even. That author, as already quoted, believes that hemlock does not paralyze by its effect on the spinal cord, while Harley's experiments show that strychnia acts on all parts of the spinal cord. The inference is, therefore, conclusive, that conia is powerless before strychnia; but Guttmann's generalization with regard to "Tetanus" is manifestly inconclusive. It is true that idiopathic tetanus, the prognosis in which is for the most part favourable, resembles the tetanus of strychnia in some particulars, especially in the probable seat of its force; but there is also acute traumatic tetanus, so fatal that neither O'Beirne, nor Hennen, nor Dickson, nor Morgan, ever saw an instance of recovery from it. To this latter variety of tetanus we oppose the third conclusion of Guttmann, namely, that the first action of conia is upon the terminations of the nerves, and eventually the trunks themselves are paralyzed.

From what has preceded we have ventured the conclusion that conia may be regarded not only as an agent probably curative of acute traumatic tetanus, but also as a means of differentiation between the natures of the two chief forms of the affection.

The pathology of tetanus is still involved in great obscurity.

> "Tetanus may be an irritation of a peculiar kind affecting the excito-motory apparatus, the irritating cause being either eccentric without or centric within the spinal canal. It may be regarded as an exaltation of the polarity of the cord and medulla. Or, it may be identical with inflammation of the spinal cord and medulla oblongata."

It is, therefore, neither surprising that contra-pathic or hetero-pathic remedies should offer sufficient temptation for a trial, nor that marvellous power should be claimed for particular agents associated with the recovery of tetanic patients. When the rigid limbs relax, when the bent spine becomes limber, when the almost fixed thorax heaves in the respiratory act, when the jaws yield and the pharynx resumes its part in deglutition, it is natural—almost consequential, that to the drug, or other means directed towards a cure, should be accorded its full measure of merit as an anti-tetanic. And yet, the diversity of circumstances under which patients have recovered, has served rather to confuse than to enlighten or guide the pathologist. Of course, autopsy alone can determine the pathology of the affection.

Perhaps one reason for the variance among therapeutists is their occasional or frequent neglect to disassociate the idiopathic from the traumatic variety of tetanus. And this error, whether practical as applied to actual cases, or unpractical as appearing in the relation of cases, is fatal to progress; and is the more to be regretted when occurring among practitioners, whose contributions to pathology must necessarily be extremely sparse, the opportunities for autopsic investigation in private practice being very rare.

In connection with the successes and reverses of treatment in tetanus as influencing the direction of future attempts, it may not be amiss to advert to the great fatality which attends some forms of the affection, and the recovery that, in a certain other, almost constantly justifies the prognosis. However much improvement may be desired in the treatment of the latter form, it is especially in the former that most need exists of a clear pathology and an enlightened medication. Consequently the profession has almost exhausted its resource of tonics and relaxants in the several methods of treatment recommended.

> "Each and all have had their advocates, inasmuch as recovery has taken place after their use, and the disease has been considered to be checked in consequence."

Mr. Poland (Vol. I. of Holmes' *System of Surgery*, 2d edition) says :—

> "In the *idiopathic variety*, where it does not assume an acute and rapid form, the prognosis is, for the most part, favourable, and we may always hope for a chance of recovery.
>
> "In *sub-acute cases* of the traumatic variety, recovery does sometimes take place, and especially where there is a long interval between the injury and its accession, and where the symptoms set in mild and pursue a slow course, gradually advancing in extent and severity.
>
> "In *acute traumatic cases* the prognosis is most unfavourable, and there is scarcely a well-authenticated instance of recovery on record."

In view of this authoritative expression of accumulated experience, it is natural that interest in the acute traumatic form should have a large development, although we differ, in the premises of the third proposition, from its able writer, as regards the ratio of mortality.

With regard to the general mortality of the affection, we again quote Mr. Poland, who says :—

> "Taking all forms together, in a fair average number of cases, the proportion seems to be 7½ deaths to one recovery."

We cannot close these remarks without insisting upon the absolute necessity for constant, watchful, and intelligent nursing, whatever be the method of treatment adopted. It is impossible for a medical attendant to anticipate either the persistence or the variation of symptoms; consequently the emergencies must be met, and advantage taken of opportunities which may prove the turning points in favour of the patient. Without such care no treatment may avail, but with it some mode of practice may gain credit and life be saved. Modern medicine calls for incessant watching in most diseases. The physician or surgeon may direct, but can rarely conduct the details of management.

CASE I.—J. G., æt. 48, admitted into the hospital of the University of Maryland, February 26, 1866. Three weeks previously the patient fell from a cart, sustaining an injury of the scalp over the left frontal protuberance, laying bare the bone to the extent of three inches. He received appropriate attention but continued his work.

At the end of a week his jaw stiffened; and rigidity of the muscles of other parts appearing, he was sent to the University hospital. The jaws were then tightly locked; the facial muscles and the sterno-cleido-mastoids tonically contracted; the thorax almost fixed; respiration difficult, and also deglutition, and opisthotonic seizure seemed imminent; the pupils were contracted; general expression of the patient one of distress and anxiety. The wound had healed, but the cicatrix was wide, red, and tender. To change the condition of the scar, which might act as a persistent cause, we applied the actual cautery with decided local effect. Calling to mind the effects of *conia*, we had prepared the following solution: ℞.—Coniæ gtt. ij, acid. sulph., gtt. j, aquæ ℥j, and ordered fifteen drops of it to be injected hypodermically every two hours, day and night. Under this treatment the condition of the patient began to improve, and his muscles to relax, although by slow degrees. As he had lost several incisor teeth, nourishment could be administered readily, and was given freely during the whole course of the affection. But he still found great difficulty in deglutition, and the dyspnœa was such as to force him to maintain the sitting posture almost constantly.

March 15. Was able to open his mouth and protrude the tongue. Could swallow without difficulty, and move his head easily, and all the afflicted muscles had become softer to the touch. The eyelids moved freely, pupils resumed their normal state, and the formerly anxious countenance resumed its natural expression.

16*th*. Still improving. As he complains of the severity of the hypodermic method, his treatment was modified as follows: ℞.—Tinct. conii, ♏xx, to be taken by the mouth every four hours, alternating with the hypodermic injection, which is to be employed every four hours also, conium in some form being exhibited every two hours.

18*th*. Suspended conium treatment, as a dry throat and symptoms of poisoning appeared. Nothing was substituted.

26*th*. Has entirely recovered the control of his muscles, and is this day discharged well, having been in the hospital exactly one month.

It is worthy of mention that during the whole of this time decided hyperæsthesia of the surface existed. Before dismissing this case we would call attention to the facts that an improvement began early and steadily; although slowly continued, the conia was not pushed to the extreme of tolerance; and that symptoms of poisoning occurred then only when conium in another shape was used along with conia employed hypodermically.

CASE II.—The notes of the following case were kindly furnished me by Mr., now Dr. G. L. Wilkins, of Baltimore:—

"C. G., æt. 24; engineer; sanguine temperament. September 5th, 1869, while on duty in a tugboat, his right hand was caught between the main bearing and the eccentric cam, causing fracture of the distal extremity of the first phalanx of the index finger, with laceration of the soft parts. He was seen within two hours after the accident by Mr. G. L. Wilkins. Complained of severe pain, which made him extremely restless. Ordered proper dressings to the finger, and an anodyne to alleviate the pain, which, however, was still distressing, and continued with more or less severity for three days.

From the 10th to the 19th Sept. he was absent from the city, and during this time he was careless about his injury. At the latter date he first observed stiffness of the muscles of the lower jaw. Was seen on the 20th, when he had rigidity of the jaw, neck, back, and extremities, coupled with a sensation, when walking, "as if his feet did not touch the floor;" countenance anxious and restless; finger has assumed a healthful appearance. The case was now yielded to Dr. W. H. Dwinelle, who ordered a half grain of sulphate of morphia every two hours.

21*st.* Rigidity has increased, and invaded the whole muscular system; risus sardonicus and slight opisthotonos; tetanic spasms about every twenty minutes; urine retained; pulse 100; great heat of surface. Morphia was ordered, and catheterism to relieve the bladder.

23*d.* All of the symptoms increased in intensity. Spasms recur about every seven minutes; opisthotonos more marked; deglutition difficult; jaw nearly fixed; constipation obstinate; and perspiration profuse. Morphia continued, and croton oil in fluid extract of senna to relieve the bowels. The finger, looking ill, was amputated, and with it the metacarpal head; the stump dressed with belladonna ointment. Prof. C. Johnston called in consultation. Patient ordered ℞.—Coniæ ♏iv; acid. sulph. dil. ♏ij; aquæ ℥ij: of this twenty drops, used hypodermically, every three hours, beginning at 1 A. M. of the 24th, when the morphia was discontinued.

24*th.* No appreciable change; pulse averaged 96; spasms about fifteen minutes interval. Ordered solution of conia ♏viij to water ℥ij; 10 drops to be given hypodermically every two hours. ($\frac{1}{3}$ drop.)

25*th.* The last remedy increased to fifteen drops every hour. ($\frac{2}{3}$ drop.)

96*th.* Conia, one drop in five drops of water, hypodermically every hour.

27*th.* Same solution of conia increased to seven drops every hour.

28*th.* Condition of the patient greatly improved; whole muscular system becoming relaxed, and deglutition easier; pulse 72. At 7 P.M. the solution of conia was increased to ten drops hourly. Throughout the day the spasms averaged about three in each hour.

24*th.* Catheterism unnecessary; pulse 68; spasms about every half hour. During the day ten drops of the solution of conia every hour. At 7 P. M., in consequence of the feeble tone of the pulse, the interval of the conia extended from one to two hours. Beef essence and brandy. It is, however, to be understood, that the patient was well supported throughout the attack.

30*th.* Muscular system much relaxed; opisthotonos disappearing, and the lateral motions of the neck are resumed; pulse 68; tone feeble. The depression of the heart's action continuing, the dose of the solution of conia was reduced to five drops every two hours, and the stimulants were persevered in.

Oct. 1. Pulse 80, and fuller; slight spasms every ten minutes. In the afternoon tetanic spasms reappeared in great violence, and recurred about every five minutes. To illustrate the decidedly controlling effect of the conia, it is sufficient to say that at 4 P. M. the dose of the alkaloid was increased from one drop to two drops every hour. By 5 o'clock the interval of the spasms was lengthened to fifteen minutes.

2*d.* Pulse 80, and good in tone. In the night spasms about every half hour; and during the entire day but three occurred. In addition to the conia, bromide of potassium was given in ten grain doses from this time, but at intervals of three hours.

3d. Slight spasms in the night, recurring about every twenty minutes. Pulse 80. Treatment continued. Conia every two hours.

5th. Improvement general; pulse 80. The night was passed *without any spasm.* Conia one drop every three hours.

6th. Pulse 84. Several spasms during the night of the 5th; rigidity disappearing. Conia continued. Bromide discontinued.

7th. Spasms about every hour during the past night. Conia every five hours. From this date until the 12th the spasms recurred about four times in the twenty-four hours; pulse 84.

13th. Conia suspended.

26th. No spasms since the 12th; no rigidity; pulse 76, of good tone; stump cicatrizing. Patient discharged cured.

While in use, the conia was continued unremittingly *night* and *day.* A greater diminution in the frequency of the spasms was observed in a given period of time after the exhibition of the conia than in a corresponding period before the next dose.

From the 25th Sept. to the 13th October morphia, to relieve pain, was given every three hours. From the 13th to the 26th October it was used successively every three, four, five, and six hours. On the 26th all treatment was suspended. Catheterism, when necessary, was practised three times a day. The bowels were kept open with ol. tiglii, $\frac{1}{4}$th drop in ext. fluid senna, ʒij for a dose. The diet was varied and nutritious."

It will be noted that the conia was first employed on the 24th Sept. in doses of $\frac{2}{3}$ of a drop; was increased gradually in amount to 2 drops every hour on the 1st Oct.; and was diminished in quantity until the 13th, when it was discontinued.[1]

Whatever encouragement may be afforded by a review of the foregoing cases, it is our duty to record two fatal ones in which conia was also employed. These four are the only instances in which the writer used the remedy under consideration.

CASE III.—A. B., brakesman, æt. 35. February, 1866, entered the infirmary tetanic, with both feet gangrenous from frost bite. These members were amputated while the patient was anæsthetized by chloroform. The spasms and rigidity not abating, conia was tried hypodermically, with the effect of lessening the intensity of both. But although the dose was increased from $\frac{2}{3}$ of a drop to 1 drop every two hours, the patient died in a seizure on the following day.

For the next case we are indebted to Dr. S. Conrad, Resident Physician in the University Hospital (University of Maryland). The report serves to show how carefully and assiduously the patient was attended.

CASE IV.—"J. R. P., sailor, æt. 25, admitted to University Hospital, March 11th, 1869, for syphilitic ulcers on the shin. Had been exposed to cold and wet four days previously in a storm at sea, and received a trifling injury on the forearm. Eight days after admission complained of stiffness of jaws and 'sore throat.' Tetanic symptoms showed themselves two days afterward—the tenth day after admission, and fourteenth after exposure.

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[1] This patient was unremittingly watched and attended by Messrs. G. L. Wilkins of Baltimore, and W. H. Whitehead of Tarboro, N. C., graduates of the University of Maryland (March 1st, 1870).

Was ordered opium for two days, and good food. 23d. Began treatment by conia, hypodermically, in half drop doses every two hours, day and night, increasing the quantity, first by diminishing the interval to every hour, as the effect wore off, then augmenting the amount gradually until it reached one and a half drops, and repeated every hour. The contraction of pupil, relaxation of spasm, and reduction of pulse, were marked features of the action of the drug. The latter was observed and noted before each injection, and also ten minutes afterward. In an average of 21 observations, the pulse was reduced from 88.7 to 80.7. Respiratory movements and deglutition were rendered freer and easier, permitting more comfortable breathing and the swallowing of food. As the effect of the injection wore off in the intervals, the trismus and opisthotonos returned. Under the influence of the conia the patient often expressed himself much better, and was able to eject the frothy sputa from the throat and take food. A few minutes before the last dose was to have been given—at 12 P. M. of the 25th—patient was seized with violent spasm, in which he died. Duration of case from time of exposure, 18 days. Duration after symptoms were observed, 4 days. Duration after treatment by conia, 2 days."

In this case tetanus first appeared on the 19th Nov., and ended abruptly on the 24th ; but an examination of the notes will, doubtless, corroborate the opinion of Dr. Conrad, that the paroxysms were greatly controlled by the conia, which prolonged the patient's life, although the remedy failed to avert the fatal termination. Let us hope, at the best, that our efforts were in the right direction.

ART. XII.—*Elephantiasis Arabum: Amputation of Left Thigh at Junction of Upper with Middle Third.* By ISAAC SMITH, Jr., A. M., M. D., late Asst. Surg. 26th Regt. Mass. Vols., &c. (With a wood-cut.)

ELEPHAS is so rare in this country, and has been observed by comparatively so few of the profession, that I feel it my duty to report the following interesting case, though the result of the operation was fatal:—

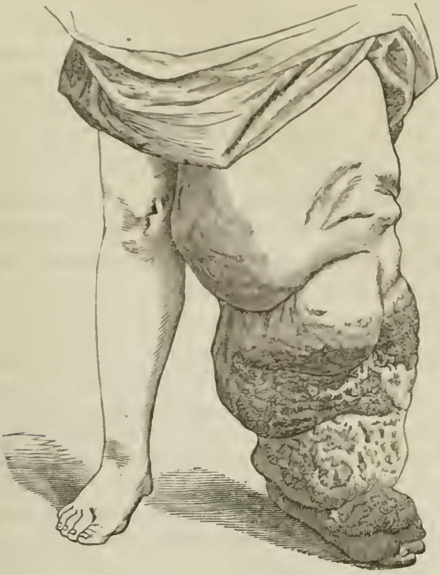
Mrs. J. G., widow, æt. 50, born in England, of English stock, emigrated to this country about twenty years ago and settled in Fall River, where, and in its neighbourhood, she has since resided. She was the mother of nine children, five of whom are still living in this city and in good health, two died in England and two in this country. None of her ancestors, so far as she was aware, ever had any constitutional disease. Her mother completing such an "hawful age" (as she was pleased to express it) that the fact of her longevity was made public in the daily journals of the day. She had never been afflicted with varix in any form. In her pregnancies nothing unusual occurred except with her last two babes, when considerable swelling of the left leg supervened, but which passed away kindly without treatment after labour. She had her menstrual flux about two weeks anterior to the operation, and had been quite regular in that habit for the year past, and had never had phlegmasia dolens.

Although somewhat foreign to the case, still the following one of *her* life's trials, in conjunction with other seen or obscure causes, might, perhaps, have had some influence upon the lymphatic system: About ten years since her husband left her for California, and she was obliged to support herself and family by daily toil. A few moments after he left the house she discovered that her hard earned and carefully deposited savings of years had been drawn from the bank by this faithless husband. She started in pursuit, but as she drew near the depot the train moved on, bearing with it not only her companion of years but also the savings of years deposited by her in the savings bank. This resulted in a fit of insanity which lasted for two years, which she passed in a lunatic asylum. She subsequently recovered her mental equilibrium and was restored to her family, to which she was a mother to date of death in every sense of the word. A few years later, after unusual muscular exertion in a damp cellar, she was (as her attending physician, at that time, has since informed me) attacked with erysipelas in the left foot, which inflammation subsided under treatment. Soon after, however, she observed that the foot was larger than its fellow, and from that time (over six years since) to date of amputation, January 27, 1870, the foot has steadily, yet surely, increased in bulk, at the same time implicating the leg and thigh to the middle of the middle third.

The measurements of the limb in circumference taken one year prior to the amputation were as follows: metatarsus, one foot; ankle (just below), one foot two inches; ankle, one foot and three-quarters; calf, two feet and five-sixths; knee, three feet; knee (two inches above), three feet two and one-half inches. Measurements a few days prior to operation: metatarsus, one foot and one-twelfth; ankle, two feet one and a half inches; ankle, just below, one foot six and one-half inches; calf, three feet one and a half inches; knee, three feet and one-fourth; knee (two inches above), three and one-half feet; at point of amputation (junction of upper with middle third), two and one-half feet Circumferences of the healthy limb: ankle, nine and one-half inches; calf, sixteen inches; opposite point of amputation, twenty-two inches. These measurements *exceed* those of other cases I have seen recorded.

George Southam, Dispensary Surgeon to the Manchester Royal Infirmary, records (*British and Foreign Medico-Chirurgical Review*, vol. i., January—April, 1848, p. 338) a case of elephantiasis which measured at calf two and three-quarters of a foot, above the knee three feet and a third. It will be observed that the measurement of my case exceeds his around the calf four and a half inches, and of the thigh two inches.

The appearance of the limb (see fig. on opposite page) before amputation exhibited an unsightly huge mass of deformity, the only resemblance bearing on humanity being in the foot, which, though enlarged and distorted with the digits alike implicated, still bore a little resemblance to a foot though in a giant form. The digits and foot had a glabrous and scaly appearance, and were of a dirty yellow hue; hard, not pitting on pressure. Fine deep sulci existed between the folds of integument of the limb with a crescentic fold on the anterior and inner aspect of the ankle about six inches in the longer diameter and two and a half inches in the lesser diameter; at its base or attachment to the tarsus about one-fourth of an inch in diameter, which was of a similar construction with the other diseased portions of the limb, with cuticular tubercular induration and ulceration upon the anterior and inner aspect of the leg with an amber-coloured aqueous discharge.



The temperature of the limb has been very variable during the last year, sometimes intensely cold, but more frequently at a high degree of excitement, and always very sensitive to the touch. In July last she came near to the brink of dissolution from the drain of a huge abscess which formed over the upper extremity of lower third of tibia, from which I evacuated, at one time, twenty ounces of thick sanguineous pus. All kinds of treatment were tried, none found to cure. Some mitigated for a time her sufferings. Allopathic, homœopathic, eclectic, botanic, clairvoyant physicians, and the "layer on of hands," have each found their efforts of no avail. She had the best skill of this city, and has been under treatment in the Massachusetts General Hospital. She appeared before our District Medical Society. Had tried iodine internally and externally by advice of her physicians; cod-liver oil and whiskey, also, without help.

I treated the limb with blisters of ceratri cantharidis, kept open by ceratri sabinæ; and after two months of this treatment the calf of the leg had lost *two inches* in circumference. An attack of pneumonia then supervened, and that treatment was necessarily abandoned, to which "punishment" she was unwilling to return when recovery from the fever took place, and for the last year the disease has been undisturbed by treatment of any kind.

Though seeing no philosophical principle involved, still, from the recorded experience of others, I was led to propose to her ligature of the main artery of the limb, but she said, emphatically, "No." That she and her family had decided on amputation as the only hope on earth for life. She being so fully persuaded, and the prospect for the future being so dark, and, moreover, Copland having recorded successful amputation in this disease, I was led to acquiesce with her feelings after a year's reflection and consideration.

Everything being in readiness for the operation, she desired her clergyman to offer prayer. She then bade us all "good-bye," and commenced the inhalation of ether as calmly as she would ordinarily have sat down to rest. No untoward symptoms occurred during the operation. The artery was readily compressed over the pubes, and very little hemorrhage occurred. The circular integumental operation was the one chosen, and she passed through it without an unfavourable symptom, was comfortably put in bed, partial consciousness returned for half an hour, when a sudden pallor came over her countenance and she passed away calmly.

I am indebted to my father, Dr. Isaac Smith, of Foxboro', Mass., and to Drs. John B. Whitaker, Charles Hayes, and A. J. Sullivan, of this city, for their highly valuable assistance during the amputation; also to Dr. J. C. Warren, of Boston, Mass., a highly accomplished microscopist, for the following pathological statement in regard to specimens of the diseased limb which I furnished for examination. He says he finds the—

"Cutis vera and subcutaneous cellular tissue to be very much thickened by a growth of dense fibrous tissue which seems to take its rise from the *outer coats* of the bloodvessels, which are very numerous and large. There are, also, vessels which appear to me to be *enlarged lymphatics*. It is not possible to distinguish the boundary line between the cutis and the parts beneath it. Most of its organs appear to be destroyed. In the specimens examined there were no traces of hair follicles or sebaceous glands. Traces of sweat glands were found here and there, and in one instance a sweat duct was found entire. The papillæ were much larger than in normal skin."

I believe that although this case was fatal that other cases might give a more hopeful prognosis. The amputation cleared the diseased parts entirely, and the only solution of the cause of dissolution seems to be that it was the result of shock. The limb weighed a trifle over *one hundred* pounds avoirdupois.

Fall River, Mass., March 14, 1870.

Art. XIII.—*Pathology of Alopecia Areata.* By L. A. Duhring, M. D., of Philadelphia.

For the last twenty years micrographers and dermatologists have been discussing whether alopecia areata is due to the presence of a fungus or other causes. This question is worthy of investigation in order that we may be able to treat the disease in a rational manner.

Alopecia areata is a disease confined to the hair system, generally met with upon the scalp, and characterized by whitish bald patches occurring in one or more parts, various in shape and size, but generally circular. This affection must not be confounded with tinea tonsurans, which it often closely resembles, for the latter exists under totally different conditions from those present in alopecia areata, and a distinction must be drawn between them. Passing over the early literature of this affection, Gruby, in 1843, declared that he had discovered a fungus in this disease, to which he gave the name of *microsporon audouini.* Shortly after this many researches and experiments were made in quest of this fungus, some corroborative of the statement of Gruby, others contradictory of it. The discussion has continued to the present day, and the only means of solving the problem is by aid of the microscope. The fact that this affection bears a resemblance in its seat and appearance to tinea tonsurans should not influence us in our investigation. The question to be solved is: When we examine the hairs and epidermis properly do we see a fungus or not? This appears like an easy problem to solve; at the same time it is but just to remark that the investigation requires a certain amount of skill and practice to avoid error.

The upholders of the present day of the parasitic nature of alopecia areata, foremost amongst whom are Tilbury Fox, Bazin, and Hardy, contend that the disease is produced by the presence of the microsporon audouini, and that this is the only cause of the disorder. This fungus is represented as consisting of mycelium and spores, the former being more abundant than in the trichophyton, while the latter are smaller and less numerous, and have all the general properties of the other fungi, and are found and demonstrated in the same manner as the trichophyton and achorion Schœnleinii. Though the object of the present remarks is to refer particularly to the nature and cause of the disease under consideration, yet, perhaps, a few preliminary words in regard to the mode of examination of the hairs will not be out of place. Among the many reagents we shall only refer to three: solution of potassa, glycerine, and water, and it is proper all three should be employed for a thorough examination, though when in search of a suspected fungus it is preferable to use the first-named solution of the following strength: Potassa fusa twenty-five grains, aqua destillata one ounce. Potassa has a definite action upon the epidermic tissue, breaking up and dissolving the adhesions of the cells at once, while after contact for some time it completely destroys the cell structure, the destructive action varying according to the strength of the solution used. Applied for immediate use of the above strength it merely separates and frees the cells from one another, without acting injuriously upon the epidermic cells of the hair itself to such an extent as to render its employment objectionable. At the same time a solution of potassa has no determined destructive action upon vegetable parasites; on the contrary, its use is always indicated in the search for these delicate structures, since their characters are more plainly brought out by its breaking up the bed of epidermic tissue, thus leading to their detection, when otherwise this would be extremely difficult, if not impossible. In order to get rid of superfluous fatty matter a few drops of sulphuric ether should be used, though this will by no means clear the hair and field completely from fat and sebum. For the purpose of obtaining a proper view of the hair, about five hundred diameters magnifying power is required, and it is well even to use higher powers occasionally to determine doubtful points; moreover a strong light is necessary to penetrate the substance of the hair.

Alopecia areata presents different appearances in its various stages, but if a patch be examined when the disease first shows itself, the hairs are seen to be fewer in number than normal, and diminished in bulk, intermingled with little, short, broken-off hairs scattered here and there over the patch. In the course of a week or two all these will have disappeared, and a perfectly bald spot with a clearly-defined margin of apparently sound hairs will be seen remaining. It is in these short, stumpy, broken-off hairs that we might expect to find evidence of disease, or at least the most marked alteration. These broken-off hairs, when extracted with the forceps, come out of their sheath without any resistance, and when placed on a glass slip with a drop of solution of potassa covered with a thin glass, and placed under the microscope, are seen terminating abruptly in a pear or club-shaped extremity, instead of the thick, long, spongy, luxuriant-looking bulb with its well-defined, transverse striæ, seen in normal hairs plucked from the scalp. The bulb is contracted, shrivelled, and atrophied, and surrounded with only a scanty supply of sebum and epidermic cells. Its periphery is generally sharply defined with a zigzag border, or in other cases presents a rounded appearance. The root retains its normal look with the exception of being diminished in size. In the shaft, however, we notice, as we approach the free end, an even and gradual distension, terminating generally in an oval swelling or bulging close to the end of the hair, and then suddenly tapering down, finishing in a broken, ragged extremity. These are the appearances we invariably find in a marked case of alopecia areata, *with no sign of fungus!*

When the hairs on the patch that have not been broken, or such as are diseased and are just ready to break, are examined, we see the same atrophied, shrunken bulb, the same feeble root, and the shaft increasing in diameter towards the free end. Many of them escape being injured and broken, and, having been detached from their papilla, act as a foreign substance, and are rapidly cast off.

Is the shrunken, atrophied condition of the bulb characteristic of this disease, or is it found elsewhere? If a hair that has fallen naturally from a healthy head be examined, almost exactly the same appearance of the bulb is seen; it is shrivelled and dead. This atrophied bulb is also found in hairs that have lived their normal life, and, having been detached from their papilla, are thrown off; in one case it is health and in the other disease. Instead of the normal growth and death of the hair, we have a sudden arrest of nutrition from some cause, and a rapid wasting and death in consequence, due most probably to atrophy of the papilla itself. If there be a defective nutrition in the papilla, a paralyzation of nerve force, the bulb will suffer first, but the life of the whole hair is quickly affected, it withers, dies, and is cast away with its blighted bulb and shaft.

Owing to some cause or other yet unknown this temporary loss of vitality in a part occurs, and there is alopecia areata, in some cases to a slight extent, in others involving the whole hair system, scalp, axillæ, and pubes; thus the entire body is deprived temporarily of its hair.

Such in a few words seems to be the most rational and probable explanation of the loss of hair in the disease under discussion, namely, a sudden arrest of nutrition in the papilla. The bulging or oval distension of the shaft at its end, referred to, due, as some consider, to the presence of fungus, is easily explained as follows: The shaft not receiving its proper nourishment from the papilla, its extreme end suffers most, and does not thrive; the filaments not being sustained as usual and losing their vitality, tend to separate and disintegrate, thus stretching the epidermic membrane and causing the appearance described. The fact that the filaments do separate is clearly demonstrated with a high power and a strong, penetrable light; moreover this distension to a greater or less extent is constant, and in the same position in every case.

When the devitalized and brittle hairs are subjected to violence, as from a comb or brush, they are broken off at the point where there is the greatest force exerted, just where they emerge from the scalp, leaving the jagged end, a small portion of the shaft, the root and bulb. In other words, nothing but the stumpy, broken hairs remain in the scalp; these soon loosen from their papilla, separate from the sheath, and are cast off a dead substance. If the hair breaks because it is greatly distended and brittle, it might be expected to break at the bulging, the point of its greatest distension, and instead of a tapering end, a wide-spread, bushy extremity be found. The hair undoubtedly does break at the point of greatest distension, but as soon as this happens the epidermic membrane, which gives contour to the hair, contracts and holds together the free filaments; thus acting as an elastic membrane and not allowing the broken filaments to spread themselves.

It may be asked: How does it happen that a fungus should have been so minutely described, if none actually exists? About the roots and shafts of all hairs normal or diseased, varying with the case, there exists an appreciable amount of sebum, broken-up epidermic cells, and débris. When subjected to a reagent, sebum has a tendency to split and break up into fine particles, and these often adhere so closely and with such tenacity to the hairs as to accurately resemble spores.

I cannot help thinking that it is to these deceptive little particles of sebum that the name of microsporon audouini owes its existence!

Upon two occasions the supposed fungus, the microsporon audouini, was demonstrated to me by experienced and well-known dermatologists; in both cases I had the satisfaction of proving conclusively by means of reagents, that the regularly divided, rounded, bright little bodies were simply aggregations of sebum.

I may add, moreover, that I have found this curious and spore-like arrangement of sebum upon hairs, normal in every respect. In conclusion, let it be borne in mind that the foregoing observations apply exclusively to the short, broken-off hairs which are found in the earliest recognizable stage, the typical hairs of alopecia areata; after this period the disease presents a different appearance, namely, complete baldness, with an edge of apparently normal hairs, which continues until recovery begins.

ART. XIV.—*Bromides in Epilepsy.* By BENJAMIN SWAN, M. D., of San Francisco, California.

IN 1867–8 I was one of the resident assistants to Dr. Whittelsey, at the Nursery Hospital, Randall's Island, New York city, and among the inmates were some fifty epileptics. The bromides were used freely, and the result of my year's experience was that as long as the system was kept saturated with the bromide "the fits" would be prevented; but an omission of the medicine, or failure to increase the dose after a time, involved a return of the disease.

A boy was brought to the Island who had epilepsy, averaging five attacks per week. He was put on Dr. Brown-Séquard's formula: ℞.—Ammon. bromid. ℈ij; Potassii bromid. ʒvj; Potass. bicarb. gr. xvj; Tr. Calumbo, ʒjss; Aquæ ad. ℥iv.—M. Cap. ʒj t.i.d. The attacks became less frequent. In course of a few weeks, after an interval of nearly a month, they began to increase in frequency again, when the dose was increased.

After this, whenever the attacks grew more frequent, the dose was increased, so that in May, 1867, he was taking drachm doses of the bromide of potassium, and a proportionate dose of bromide of ammonium; on this he went from May till August without an attack.

Great attention was paid at the same time to the bowels, and a purge of calomel and podophyllin was given occasionally. In the latter part of August his father took him from the Island, contrary to my advice, as he could not afford to buy the bromides, saying the boy was well, as "he'd had no fits for four months," and "he'd risk it."

In the middle of October he was brought back, having fits at the rate of three a week. The treatment resumed diminished the frequency of the attacks, but the most heroic doses failed to produce an interval longer than three weeks.

In another case a boy, after reaching drachm doses, had large ulcers appear on his legs. The dose was diminished, when the ulcers healed and the fits returned. We again increased the dose, the "fits" disappeared and the ulcers reappeared.

I might give numbers of cases, all seeming to prove that a point is finally reached when the system becomes insensible to the action of the medicine.

I could not therefore call a case cured while still under the influence of the medicine, and, judging from my own experience, I should very much fear to reduce the dose; and, on the contrary, expect to be obliged to *increase* it.

I believe the bromides to be the best remedies in epilepsy, but I have yet to hear of a case that was perfectly cured.

TRANSACTIONS OF SOCIETIES.

ART. XV.—*Summary of the Transactions of the College of Physicians of Philadelphia.*

1870. *Feb. 16. Compound Fracture of the Skull with Aphasia.*—Dr. ADDINELL HEWSON exhibited the specimen and read the following account of the case:—

J. T., æt. 23, waiter, single, coloured, admitted to the Pennsylvania Hospital February 11, 1870. At 5 o'clock this morning received a blow from a heavy water pitcher, which produced a somewhat eccentric wound of scalp, about two inches in length, above and slightly in advance of the left parietal boss, and a depressed fracture of the skull beneath. The depression is equal to the thickness of the bone. The patient, although carried to the hospital, walked into the ward, and when first seen was sitting in a chair. Shaved before admission; very little hemorrhage from wound; mind clear; expression anxious; no paralysis of the tongue or limbs; perfect aphasia; gave intelligent replies to questions by signs, but was utterly unable to speak, except a drawling attempt to say, "Yes, sir." Respirations slow; pupils normal; hearing unaffected; no hemorrhage from the ear. No other injury discovered.

Ether at once administered; scalp turned out of the way by elongating the wound, and crossing it by an incision at right angles; a portion of bone removed by trephine, and the depressed portion elevated to its proper line. An effort was made to preserve the periosteum; two small arterial branches were controlled by seraphines, and a larger branch of the temporal by an acupressure pin.

Four hours after the operation.—Seraphines removed, and a dressing of gauze and collodion applied, with a water dressing over all. Patient still unable to speak; condition much the same; dorsal decubitus. Pulse 61; respiration 22. Ordered pil. hydr. gr. vj, to be followed in the morning by Rochelle salt ℥ss.

12*th.* Since the operation has been very restless; is very easily aroused; has some difficulty in protruding tongue; no change in pupils; aphasia continues; some slight venous oozing from the wound. Bowels not been moved; ordered a turpentine injection. Pin removed. Pulse 77; respiration 16.

13*th.* Bowels freely moved early this morning; passed urine and feces in bed, probably because he was unable to call nurse to his aid. There does not seem to be any paralysis of the sphincters. Can arouse him by speaking in a loud tone; he appears to understand, but makes no attempt to answer. Last evening dry earth was used in place of the water dressing. Earth has been removed, crusts not. Very restless; disposed to lie on left side. Pulse 80; respiration 20; somewhat stertorous.

14*th*. Some puffiness around the wound; a poultice applied to venous crusts. At noon all dressings removed, and wet cloths applied; stupor more marked; can detect no paralysis; tongue heavily furred. A.M. Pulse 80; respiration 24. P.M. Pulse 118; respiration 32; temperature in either armpit 105°. Some puffiness of cheek; breathing stertorous; almost if not complete unconsciousness; pupils respond to stimulus of light, left more dilated than right; eyes open.

15*th*. 6 A.M. Death without convulsion.

Autopsy nine hours afterwards. — Cadaveric rigidity slight; some clotted blood beneath scalp. A short distance below the point of trephining the fracture is found to be stellate. Two branches extend downwards; one posteriorly to mastoid process, where it turns forwards to involve base of petrous portion of temporal; the other anteriorly through squamous portion into middle fossa of the skull, towards point of lesser wing of the sphenoid, which it does not, however, implicate. This fracture ruptured the middle meningeal artery at the point at which it crosses it. At this point on the external surface of the dura mater is a large, flat, partially broken-down clot, two inches in diameter. Beneath dura mater left hemisphere is covered, with exception of its posterior fourth, with pus. There is a well-marked but shallow depression in the surface of the brain an inch and a half long and parallel to brain's axis, immediately beneath the point where the bone was most depressed by the blow. Right hemisphere presents nothing abnormal, except an apparent flattening of the convolutions opposite the seat of injury. No hemorrhage at the base, or in the substance of the brain itself, to explain the aphasia; nor could any alteration of the cerebral structure be detected by the microscope.

The point of special interest in this case, and which has induced me to present its history to the College, is the aphasia. This symptom, as I understood from those who accompanied the man to the hospital, developed itself immediately after the infliction of the blow which fractured the skull. Up to the moment of the injury he had been in the enjoyment of perfect health; had never manifested any brain trouble, so that the loss of speech was directly due to the injury. The wound on the scalp and the point of depression in the skull were not in the position to explain, by the idea of direct compression, the existence of this symptom, according to what is generally taught of the location of the faculty. The absence of hemorrhage through the opening made by the trephine, or of its existence under the dura mater, of hemiplegia, of deafness and of bleeding from the ears, ignored, at the time of the operation, the notion of any lesion of moment beyond that of the direct wound. The persistence of this symptom after I had elevated the portion of depressed bone, showed clearly that it was not due to that circumstance.

The clot was evidently the source of the pressure in this case, and its position on the external surface of the dura mater, and at the side of the brain, rather precludes the notion of Voisin that the faculty of speech is located in the gray matter of the left island of Reil, and also that of Broca that it is in the inferior portion of the third frontal convolution of the left hemisphere, for the pressure which it could have exerted through the brain substance at either of these points must have been very trifling. The case could, however, be used to support Dax's (père) rather indefinite idea of the faculty being located in the half hemisphere, or even Bouillaud's still more vague theory, for which he has offered five hundred francs for a case to controvert, that it is in the anterior lobes of both hemispheres, for the right hemisphere was evidently crowded over in its anterior portion on to its side of the skull. The occurrence of the essential lesions in this case, on the left side, is in accordance with what has been most constantly observed; and in this connection the fact pointed out by Gratiolet, of the development of the left hemisphere being in advance of the right is of some importance. So is also the fact of this man having been a negro, for the same high authority has shown that in the Caucasian race the anterior fontanelle is the last to ossify in order to permit of the greatest possible development to the frontal lobes, whereas in the Ethiopian race the converse condition exists, the posterior fontanelle is the last to ossify, hence the receding forehead and the well-developed occiput in the negro; and we may have some explanation of the symptoms being so much more marked in this instance than what I am sure many here have seen arise in the white man from the same extent of lesion.

March 16. *Ulcero-Membranous Angina.*—Dr. J. M. Da Costa read the following paper:—

There is at present prevailing in the city a form of sore throat which seems to me to present features worthy of study. I shall endeavour to describe these features from ten cases, eight of which occurred in my own practice.

The complaint begins with a chill, followed by fever and the ordinary manifestations of angina. But on looking into the throat we find, within twenty-four hours of the outbreak of the malady, on the tonsils, small spots covered with a yellowish exudation, and on inspecting them closely we perceive them limited to the follicles of the glands, one tonsil being more affected than the other, but both sharing in the disorder. Each is red and swollen, and the redness extends to the half arches and palate; the back wall of the pharynx, too, is in some cases implicated, and its follicles may be red and prominent. But beyond the yellowish exudation mentioned, there is nowhere any sign of deposit, nor does any appear as the case progresses. Shortly after the throat affection is manifest, or at the same time with it, a marked enlargement of the glands of the neck takes place; the submaxillaries and the chain of glands connected with them become painful, prominent, and hard, generally much more so on one side than the other. Coincident with the glandular swelling we are struck with the prostration of the patient—a prostration great, apparently unaccountable, and out of all proportion to the sore throat. The fever, which never runs high, which never, therefore, shows much acceleration of pulse or heat of surface, remits in the morning, exacerbates in the evening, and soon gives way to a moist rather cool skin, and to pallor of the countenance. There is from the onset utter loss of appetite, with a heavily coated tongue, sometimes with nausea and vomiting, and occasionally with slight diarrhœa. After three or four days the little yellow marks begin to disappear, and we find where they have been, raw spots, as if from superficial ulceration. The enlarged chain of glands commences to subside, but the hardness remains for a number of days after the throat has an almost natural look. The patient is now out of bed, and to all appearances fairly convalescent, very weak and wretched, but without active throat trouble. He has arrived at this condition from the 6th to the 9th day of his sickness; in milder cases sooner. But does he now get well? Not always. A relapse is very prone to happen. It occurred in four out of the ten cases, and in one of these twice. I shal briefly describe this case:—

C. M., aged 6, had a light form of this angina, lasting three days; then convalesced, and remained well a few days, when she was again seized with a sore throat and glandular enlargement. The attending debility was so great that she fainted on attempting to rise from bed. The second attack lasted about four days, and all appearance of sore throat passed away. But in a few days more she had as in the previous invasions, a chill, slight febrile excitement returned, the glands of the neck were again very much swollen, and the follicles on the tonsils, as at first, covered with little yellowish masses. Her tongue was heavily coated, and the prostration very decided. Indeed she was herself so conscious of her weakness that she gladly remained in bed; for an attempt, even after she appeared nearly well, to get at her playthings led to a fainting spell, and to subsequent positive distaste for the previously coveted toys. The third attack was of six days' duration, and left the glands of the neck swollen; at its termination, large fever blisters appeared on the lips and cheek.

The sister of this little girl, 11 years of age, had also a relapse. In her case the affection of the follicles of the tonsils was very marked, and there was considerable loss of substance after the ulceration was manifest. The glandular swelling was very great and painful, lasted for two weeks, and finally involved the right parotid, thus giving rise to a secondary parotitis; this henceforth with the suppurating cervical glands formed the leading feature of the case, and a tedious and protracted convalescence ensued.

Tumefaction of the glands of the neck is then a prominent trait of the malady. In truth it is never absent, occasions much discomfort, and is at times associated with sharp shooting pain, passing to the angle of the jaw. The glandular swelling is double-sided, yet generally much more marked on the side on which the affection of the tonsils is most decided. The enlargement of the glands is confined to the neck. I have looked in vain for prominence of lymphatic glands in other parts of the body.

The secretions in this angina are much influenced. I have already spoken of the heavily furred tongue. It remains furred throughout the attack, and then cleans from the edges; the follicles are in places seen as prominent points, surrounded by the deep coating. As regards the urinary secretion it is apt to be scanty at first and high coloured, then increases and becomes pale. I have tested for albumen in several cases, both early in the malady and at its decline, but have not found this abnormal ingredient. The only exception was in the case of great glandular swelling just alluded to. Here when the sore throat had nearly terminated, and the glandular swelling was marked, an extremely slight opalescence was noticed on boiling the urine and adding nitric acid; as the glandular swelling became enormous and involved the parotid, albumen appeared in decided quantities. But this case was the worst I have encountered, and the depression and signs of blood-poisoning were those of a malignant sore throat.

The disorder I am discussing is pre-eminently a disease of children or of young adults. The youngest of my patients was three years of age; the eldest, twenty-five. It is, I think, contagious. Four cases occurred successively among the children of one household; three others, among young adults of another. And Dr. Herbert Norris informs me of eighteen cases that happened mostly at the Orphan's Asylum, which I recognize from his description to have been the same disease. True, the argument against the supposed contagion might be that the cases were all equally exposed to the epidemic influence, but members of the same family being seized one after the other, and sometimes a week apart, is greatly against this view of the subject.

Good general health does not confer immunity, for some of my cases happened in the most robust subjects. Nor does the previous occurrence of scarlet fever exempt, since nearly all of my patients had had scarlet fever; four of them I attended for this disorder about a year ago.

Looking now at the distinguishing features of the sore throat, we find it unlike ordinary tonsillitis in involving so uniformly both tonsils and inflaming the parts around, though not blocking up the throat so completely; unlike, in the existence of a follicular exudation and subsequent small points of ulceration rather than of the creamy streaks and suppuration with marked loss of substance of quinsy; unlike, in the absence of much difficulty in swallowing, in the early and extensive implication of the cervical glands; unlike, further in the slight fever, in the great prostration. We encounter, it is true, in some cases of tonsillitis, whitish spots on the inflamed gland, but these exudations or discharges from the crypts are not associated with ulceration, and the whole character of the case is so different.

But the most interesting point in connection with this angina is *its distinctions from diphtheria*, I mean from that malignant disease which we ordinarily describe as diphtheritic sore throat. I admit at once that in isolated cases, or where we are unacquainted with the epidemic tendency, such a distinction may be with great difficulty arrived at, may, indeed, not be possible. But when we see cases in which the disorder is limited, and particularly to the tonsils; in which the exudation shows no spreading tendency; in which superficial ulcerations happen; in which a chill and febrile excitement and nausea and vomiting mark an abrupt beginning; and in which, though sick and prostrate, the patient always recovers—we have cases before us very dissimilar to the dangerous disease of insidious approach, of constant tendency to extension, of so often swiftly destroying character.

Let us leave, however, the merely distinctive clinical features for other considerations. Is not, perhaps, the disease I am endeavouring to describe after all in its nature diphtheria? Do we not find prostration, out of proportion to the local lesions, and signs of blood-poisoning, as we do in diphtheria? We do find these signs, and they suggest strong analogy, suggest, I believe, relationship, but not identity. How else account for the fact that in not one of my cases regular diphtheria with its spreading formations occurred, notwithstanding, as I have already stated, that in many instances the disorder propagated itself so distinctly by contagion? And the same fact was noticeable in Dr. Norris' cases; the ulcero-membranous sore throat, to call it by this name, produced only ulcero-membranous sore throat.

This disease then may be kindred to diphtheria, but it is not diphtheria, and is the result of a special and milder poison. It is very likely that some of the membranous sore throats dwelt on by the older authors were of this kind, though all their descriptions, it is the fashion of the day, to dismiss contemptuously as imperfect descriptions of the one disease, diphtheria. The cases from which I have drawn my conclusions may be perhaps identified with some of follicular diphtheritis which have been recently reported; still more certainly with the malady named by Gubler, "herpès guttural," but which Trousseau delineates far better under the term of common membranous sore throat—a term previously used by Bretonneau, who, though recognizing what I suppose to have been the same disease, describes it but very imperfectly, making, however, a statement that shows him not to have thought it diphtheria, namely, that of all affections it is the most difficult to distinguish at the commencement from diphtheritic angina.

As regards the treatment employed in my cases it consisted locally, of gargles of chlorate of potassa and claret, and of sage tea and alum; internally, I gave at first remedies to act slightly on the skin and allay the nausea; soon, however, in all but the mildest instances of the disorder, followed by iron, preferably used as the tincture of chloride in combination with acetate of ammonia. Quinine also was resorted to, but it did not ward off the relapse in the case in which it was most freely employed. Milk and nourishing broths were ordered in considerable quantities from the beginning, or rather as soon as the stomach tolerated them well, and this free nutrition was often aided by small quantities of stimulants as the malady advanced; large quantities were never necessary and never given. Poultices around the throat offered decided relief where the swelling of the cervical glands was marked, and many of the little sufferers went quietly to sleep under their soothing influence.

Chronic Laryngitis, presumably Syphilitic; Asphyxia; Tracheotomy. Complete Cure with Restoration of Voice.—Dr. WILLIAM PEPPER read the following history of the case with remarks:—

C. Y., æt. 38, native of Holland, married, of temperate habits, and had followed the sea from his youth, was admitted to the Pennsylvania Hospital January 9, 1865. Fifteen years previously he had contracted syphilis, but, with the exception of repeated attacks of sore throat, has never presented secondary symptoms. Has never infected his wife. Has three perfectly healthy children. No hereditary predisposition to tuberculosis. Was always healthy until 1861, when he had a bad attack of sore throat, with severe cough and thick mucoid sputa. Was treated by cauterization of the throat and recovered in fourteen days. Five months afterwards he had a second attack of sore throat, attended with great dyspnœa and dysphagia, from which he again entirely recovered. Fourteen months afterwards he had a third, but more mild, attack of sore throat. In February, 1865, his throat again becoming sore he went immediately to the coast of Cuba. The disease increased, however, and he began to suffer much from dyspnœa and aphonia, with pain and soreness in the larynx.

On admission, he was ordered ammonia carb. gr. vj, syr. senegæ f℥ss q. s. h. The posterior wall of the pharynx presented several dense, white cicatrices. Laryngoscopy was attempted, but it was impossible to get a clear view of the larynx owing to the thick mucus which continually rose from it. There were no physical signs of tuberculous disease of the lungs.

July 10. After several weeks his voice became better, and the spells of dyspnœa less frequent and severe. The improvement, however, was transient, and he soon had several spells of spasmodic dyspnœa, which almost called for tracheotomy. He was put upon the use of large doses of iodide of potassium; blisters were applied over larynx, and he was directed to use warm inhalations.

August 7. Ordered ol. morrhuæ f℥ss t. d., and hydrarg. bichlorid. gr. $\frac{1}{16}$th was added to each dose of the iodide of potassium. The inspirations were very stridulous and laboured, his voice almost lost, and the dyspnœa extreme. Some relief was obtained from the internal use of ether. Has lost flesh, and has hectic fever at night.

September 4. The dyspnœa increased so frightfully during the past twenty-four hours, the surface becoming livid and the extremities cold, that it was decided to perform tracheotomy. On entering the ward to operate, he was unconscious, with barely perceptible respiration. The face and extremities were cold. I immediately performed tracheotomy, but, before the operation could be concluded, breathing had entirely ceased, the head fell back, and the lower jaw dropped, the heart, however, continuing to beat very feebly. The tracheal tube was hastily introduced, and artificial respiration (by Marshall Hall's method) was resorted to, and aq. ammoniæ fort. held before the nose. For some time it seemed impossible to rouse the nerve centres, but gradually the capillary circulation improved, large quantities of tough bloody mucus were discharged through the tube, and by the end of forty-five minutes he could be roused so as to breathe voluntarily, although he constantly tended to fall asleep. Whiskey was freely administered so soon as he could swallow, and in an hour and a quarter, respiration was being carried on quite naturally. The incision commenced a half-inch above notch of sternum, and embraced two tracheal rings.

For some days there was very little inflammation about the incision. His respirations were easier than for several months, and his power of deglutition became much better than before the operation. He again slept quietly, and was able to walk about without any difficulty, and gained flesh and strength daily. Ordered syr. ferri iodidi f℥ss t. d. p. c.

14*th*. Found early in the morning suffering with extreme dyspnœa, and breathing hastily with a hissing sound. The tube had slipped out of position, and was therefore immediately removed. Even then, however, the respiration was very imperfect and difficult, the face became livid, and a marked tendency to drowsiness showed itself. On attempting to re-introduce the canula, it was found to readily enter the opening in the trachea, but could not be forced downwards at all. A stricture was found, less than an inch below the tracheal opening, through which the smooth rounded end of a small silver catheter could barely be passed. Gradual dilatation was effected by graduated catheters until he was able to wear one with an eye large enough to carry on respiration through. Later in the day, Dr. William Hunt extended the external incision upwards about an inch, cut out a small piece from each edge of the trachea, and then endeavoured, by a curved bistoury, to nick the constriction. This was partially successful, but the ordinary canula still could not be introduced, and he was obliged to wear a canula formed of the lower end of a large silver catheter with the eye much enlarged, with wire rings soldered on either side to allow it to be secured in place by a tape passing around the neck.

October 4. For some days after the above operation he was unable to swallow anything but liquids, but he is again gaining the power of deglutition. External wound filling up rapidly; still wears the catheter. Is again up and walking about, and has gained some flesh and strength.

21*st.* Dilatation of the tracheal stricture has been steadily persevered in by means of flexible bougies, and a large canula has been passed by means of a *plunger* with a smooth conical end. This was readily passed through the stricture, and worn with ease. A remarkable improvement has taken place in the last two weeks; he has gained greatly both in flesh and strength; is able to swallow without difficulty, and by closing tube with his fingers can speak with some force, though huskily. An inner canula, accurately fitting the first, and with a straight projection anteriorly so as to carry the sputa clear of the neck, has been introduced, and he left hospital to commence his trade of a sail maker. Ordered to continue syr. ferri iodidi f℥ss t. d.

During the cold damp winter weather he suffered considerably from bronchial irritation and dyspnœa, and about February there were indications of the laryngeal disease progressing, as he began to experience great trouble in swallowing, from the entrance of fluids and solids into the larynx. He suffered violent spells of coughing during meals, so that it took him hours to eat a dinner. At the same time he emaciated and lost strength. The tube never created any irritation. These symptoms subsided, and when next seen, May 24, 1866, he was much improved in appearance; had gained flesh and strength; breathing slow, regular, and easy; and by closing the tube he was able to speak quite plainly, so as to be readily heard across the street. Expectoration had almost entirely ceased. The tube did not cause the slightest irritation. There has been no necrosis of the tracheal rings.

He was seen again February 14, 1869. During the last thirty-three months he has continued in excellent health, and is now a very vigorous and robust man. He has worked steadily at erecting high scaffoldings. Expectoration has entirely ceased; never suffers from catarrh, though exposed to all kinds of weather. Still wears the tube all day, enveloping the throat in a thick woollen scarf. At night, however, he removes the canula and sleeps without it. He never experiences the slightest difficulty or irritation in thus frequently removing it. By closing the orifice of the canula he can now speak in a clear and loud voice.

Remarks.—The first point of interest in this case is the determination of the nature of the laryngeal affection. The history of primary syphilis was perfectly clear, but a period of eleven years followed the infection, during which no secondary symptoms whatever manifested themselves. Subsequently, however, the patient suffered from repeated attacks of ulcerated disease of the pharynx with laryngitis; and the character and results of these attacks agree so entirely with those of an undoubtedly syphilitic nature, that it seems altogether probable that such was their character in the present instance. At one time the marked emaciation and hectic fever led to the suspicion of tuberculous disease, but this idea was rejected on account of the age of the patient, the absence of hereditary tendency, the evidences of severe ulceration of the pharynx, and the absence of any physical signs of pulmonary disease.

It is to be regretted that the operation of tracheotomy was postponed until so late, but this postponement afforded an unusual opportunity for testing the power of artificial respiration in the resuscitation of asphyxiated patients. In point of fact, the patient may be said to have been dead, so far as the brain and lungs were concerned, though the heart still continued to contract slowly, feebly, and ineffectually. The mere effect of the operation itself was purely negative, as all respiratory movements had entirely ceased, but it gave a chance for the employment of artificial respiration with complete success. The easy, free, and forcible entrance and exit of air through the tracheal tube in this case, as the movements of the trunk advised by Marshall Hall were performed, suggested the idea that tracheotomy might be resorted to to aid artificial respiration, even when there was no obstructive disease of the larynx It is probable that in many cases of profound asphyxia, the effects of any method of artificial respiration are seriously impaired owing to the difficulty of securing free admission for the air to the lungs. Apart from the fact that the nasal and buccal cavities may be more or less obstructed by mucus, the vocal cords are relaxed, and are apt to be approximated by the pressure of the entering column of air, so that the aperture of the glottis may be narrowed or even obstructed during the artificial inspiration. Should this difficulty be suspected in any case, it is to be remembered that the operation of tracheotomy requires but a moment to perform, that in itself it can scarcely be said to present any danger, and that it affords instantaneously a free, uniform, and certain mode of access for the atmospheric air to the lungs. It so rarely happens that we have an opportunity of learning the sensation connected with the act of dying, that I cannot forbear from alluding to the testimony of the patient on this point. For some time before he passed into a state of unconsciousness he had presented all the appearances of threatening asphyxia. His face was livid ; the features ,distorted with the efforts at inspiration, and his expression most agonized and appealing ; all the muscles of respiration were thrown into violent, almost convulsive, action, and the hands were frequently put up to the throat as though to remove some obstacle. These symptoms disappeared as the state of asphyxia became profound ; but I am sure that an ordinary observer would have said that he had died a most painful and horrible death. Some weeks afterwards when questioned carefully as to his sensations for some time preceding the operation, his only recollection of his feelings was conveyed in the expression " that he went gradually into a sweet sleep !"

The after-course of the case illustrates one of the dangers which must be guarded against, although it is impossible to say certainly whether the stricture of the trachea was due to disease which had existed before the performance of the operation, or had been caused by granulations developed by the irritation of the end of the canula. It is probable, however, that some antecedent ulceration of the trachea must have existed. The success which attended the dilatation of the stricture by graduated flexible bougies illustrates clearly the impunity with which lesions of the trachea can be treated after tracheotomy.

It is by no means an unusual thing for tracheotomy in syphilitic diseases of the larynx to be followed by the excellent results obtained in the present case. It may indeed seem surprising that the mere operation itself should induce a complete cure of the local disease of the larynx, and that the aphonia, dysphagia, and all signs of irritation about the part should so soon disappear. But it is, I believe, a fact that when once the larynx is placed at perfect rest by the admission of air through the new tracheal opening, the tendency in the majority of cases is to an arrest of the laryngeal disease, and to a return of the parts to as near their normal condition as the actual loss of substance from ulceration will allow. Undoubtedly this tendency is favoured by the continued employment of suitable internal treatment, and it is another of the great advantages of tracheotomy that it gives the opportunity of pursuing the use of antisyphilitic remedies. Still another advantage that is gained by tracheotomy, in reference to the local disease, and which has been already alluded to, is the opportunity for using local applications to the seat of disease, and, in the event of finding obstruction of the trachea, for dilating the stricture by suitable instruments. So far as concerns the effects of the operation upon the general nutrition the benefit gained is incontestable. In the present case the patient had been using the same internal treatment before as after the operation, and yet, within a few days after the canula was first introduced, the mere admission of a free supply of oxygen to the lungs was sufficient to cause a change in his whole nutrition, and to lead to a rapid improvement in general appearance, and to an increase in both flesh and strength. It is certainly not surprising, when we reflect upon these positive advantages gained by the performance of tracheotomy in obstructive syphilitic disease of the larynx, that the idea should have presented itself of resorting to the operation not merely to save life from actually threatening asphyxia, but as a means of cure. In a valuable paper read before the Clinical Society of London by Mr. Thomas Bryant (*Trans. of Clin. Soc. of London*, vol. i., 1868, p. 127) upon "tracheotomy as a means of cure in chronic laryngeal disease," he says:—

> "In too many instances operative interference is postponed to too late a period for even this result [the improvement of the local disease] to be obtained, the patient being frequently in a dying state before such an operation is demanded or thought justifiable; for it may be here stated that every patient with ulcerative disease of the larynx is not far from death's door, and that at any moment a laryngeal spasm may take place and destroy life. But in the present day surgeons and physicians have only thought of tracheotomy as a last resource, as the means of warding off death when threatened from impending suffocation, and never in the light of a cure for the disease itself. I would wish them to look upon it in such an aspect, for I believe that we have in tracheotomy a valuable remedial agent in ulcerative laryngeal disease—syphilitic or otherwise—and that we have it in our power in many cases not only to save life by such an operation, but to preserve the larynx as an organ of voice and respiration."[1]

The present case is offered merely as an illustration of the actually curative effects of tracheotomy in ulcerative laryngeal disease, and consequently as a corroboration of the views of Mr. Bryant, above quoted. It illustrates further the fact that, even when the disease has reached its last stage and death is imminent from asphyxia, the operation should be performed, and may not only be followed by great prolongation of life, but by marked improvement in the local disease. It is however impossible to draw from such a result the inference that tracheotomy should be postponed until so late a period. This is forbidden both by the fact that such long delay is apt to be attended by irreparable injury to the larynx, and further, that when the degree of obstruction is considerable, there is always danger of sudden death from a suffocative attack before aid can be summoned and the operation performed. The operation is indicated therefore, whenever, in spite of constitutional treatment and of local applications, ulcerative disease of the larynx is advancing, and the symptoms of obstruction are increasing. There is already abundant evidence to show that when performed under such circumstances we may hope not only for an arrest of the disease, but in many cases for a restoration of the functions of the larynx. The time at which the canula can be removed will of course vary with the stage and extent of the laryngeal disease. As a general rule it may be said, however, that it should not be removed until the local disease has healed, and it has been found that respiration can be carried on through the larynx. In order to determine this latter point a canula may be employed having an opening upon the convexity of the tube, and with a sliding valve by which the external opening may be more or less reduced. In cases where it is necessary for the canula to be worn for a long time it should never, according to Bryant, be allowed to remain unchanged for more than three months. The present case furnishes an excellent illustration of the tolerance of its presence which is established, and of the impunity with which in some cases, the tube may be worn for years, and removed and re-introduced at the pleasure of the wearer.

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[1] See also M. W. Trélat, on Tracheotomy in Syph. Lesions of Resp. Passages, in Arch. Gén. de Méd., Jan. 1869, p. 105.

Acetic Ether as an Anæsthetic.—Dr. H. C. WOOD spoke of the prevalent dissatisfaction of the profession with our present anæsthetics and the consequent search, especially in London, for new ones. He thought that this search had perhaps been in a measure wrongly directed, since it had chiefly been among the chlorine compounds, many of which, if not all, are powerful depressants, and drew attention to the recent death from bichloride of methylene as an illustration of their dangers. He had therefore directed, himself, some thought to the ether series as probably all stimulants. He exhibited a specimen of acetic ether to the College, prepared for him by Mr. Chas. Bullock of this city, and stated that he had not yet tried to fully anæsthetize the human subject and could not therefore say whether any practical use could be made of it. In pigeons and rabbits it produces perfect unconsciousness without nearly so much previous struggling as when ether is used. It is certainly much more agreeable, though apparently less active than that anæsthetic, having a peculiar pleasant odour, very closely resembling that of apples, which no doubt owe their smell to it or the closely allied—malic ether. An advantage which it has over sulphuric ether, especially for night use, is its comparative non-inflammability, connected partly with its lesser volatility. It seems impossible to light it through its vapour diffused in the air, and when set on fire its flame may be readily blown out, which it is well-known cannot be done with ether. A curious result of its high boiling point and slight volatility is that cotton saturated with it will remain for an hour or more sufficiently impregnated to produce anæsthesia in a pigeon. He had himself breathed the vapour, but not to the point of unconsciousness. The sensations produced were similar to those connected with the inhalation of ether, but he thought more pleasant. Dr. Wood then placed a pigeon under the influence of this anæsthetic. It passed gently and quickly into an insensible state, and again awoke without struggling after a few minutes of quiet sleep.

April 20. *Excision of a Portion of the Lower Jaw.* Dr. FORBES exhibited the patient and said:—

The case of the young woman now before the College is one of excision of one-half of the lower jaw-bone, with the exception of the condyle and coronoid process. The ablation was from the symphysis to the sigmoid notch on the left side.

The operation was performed just a year ago, and the woman is now in the enjoyment of excellent health. The sinking of the cheek is but little and the deformity is slight, as the Fellows of the College will observe only a very small linear cicatrix from my excision, extending from the inferior margin of the symphysis along the under surface of the body to the posterior aspect of the angle of the bone.

H. B., aged 23 years, unmarried; works at a sewing machine; came into the Episcopal Hospital on the 9th of February, 1869.

Three years previous to her entrance she had observed a lump on the lower part of the gum of the left side of the lower jaw which she attributed to some decayed teeth, but having the teeth removed the lump did not disappear—on the contrary, it soon got larger. It gave her but little pain, and grew slowly, when in September, 1868, she observed some "growths" coming up from the jaw where the teeth were formerly lodged and which had been removed nearly a year previous. Early in November, 1868, she went to the clinic of the University of Pennsylvania, and a portion of the tumour was removed through an incision extending along the inferior lateral surface of the bone. The wound healed, leaving an elevated line or cicatrix. Soon after this she entered the Episcopal Hospital, and when I came on duty in April the tumour was observed to be increasing. It had been three years in attaining its growth; it was comparatively painless; the tissues covering it remained healthy, though greatly distended; the absence of all glandular disease and of all cachexia, and any tendency to ulceration; its situation and the freedom from resentment of any injury, although a portion of it had been removed some months previous, all these points indicated its benign nature, and the propriety of recommending its removal. Accordingly, at a consultation held the first week in May it was so decided. The patient was anxious for the operation, and it was at once performed.

Ether being administered the left inferior incisor tooth was removed, and an incision was made with a bistoury under the chin just behind the symphysis and the knife carried up close behind the bone on its concave aspect until it appeared behind the gap made by the drawn tooth; a chain saw was then passed up through this opening by means of an eyed probe armed with a ligature having the saw attached. The jaw-bone was then bisected at the symphysis, the tongue being held out of the way by means of a thread passed through its tip. An incision was then made from the under surface of the symphysis along the inferior border of the bone to the posterior aspect of the angle; the facial artery was cut and secured at both ends, the soft parts with as much of the periosteum as possible were elevated; a similar incision was made nearly parallel to this so as to include the rough linear cicatrix of the former operation, and the parts detached as rapidly as possible. The inferior dental nerve and artery where they enter the posterior dental foramen were severed and the artery secured. The chain saw was now passed around the middle of the ramus of the bone and the end near the symphysis grasped with a strong pair of forceps, was held by an assistant, and the section of the bone removed.

The gap thus made was large—six ligatures in all were applied and the general oozing arrested by bathing the part with equal parts of alcohol, laudanum, and water. The amount of blood lost was believed to be about four ounces. The lips of the wound were approximated and held by leaden wire, and the cavity packed through the mouth with pledgets of lint. A dressing of cerate was applied and sustained by a bandage, the ligatures being brought out of the angle of the mouth. The patient reacted well, and an anodyne being administered she was removed to the ward. The anodyne was repeated frequently, and she was sustained by liquid nourishment. The sutures were removed the third day; the ligatures came away in due time, and in four weeks she left the house well.

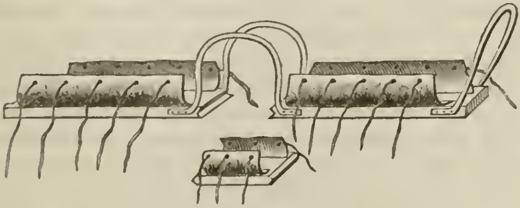
On examining the tumour it was found inclosed by the body of the bone, having distended its walls, particularly the outer one, until they had become exceedingly thin and destroyed in two places, as may be observed in the specimen in the bottle. Its boundary was well defined, though it was not in a capsule; its centre was soft and almost gelatinous, and of a grayish-white colour; and every part of it was easily broken up. On examination under the microscope, cells, angular and attenuated like caudate cells, having dotted contents, with nuclei and nucleoli, and free nucleoli, as observed by Mr. Paget in his description of myeloid tumours, were readily seen. With Mr. Paget, I prefer to believe, however, that the true nature of morbid growths generally is to be apprehended more correctly by examining them as living things, and modes of life rather than conditions of structure determine me in classifying them.

The tumour was evidently a myeloid one, the nature of which has been well described by Mr. Paget, and more recently by Mr. Christopher Heath in his excellent work on Injuries and Diseases of the Jaw, the Jacksonian Prize Essay of the Royal College of Surgeons of England published in 1868.

April 20.—Dr. PACKARD exhibited a splint devised by him, and successfully used, for keeping the lower limb at rest after excision of the knee. A similar arrangement might be employed in cases of compound fracture.

The splint, for which accurate measurements should be taken in each case, consists of a wooden portion, upon which the entire limb rests; leathers are tacked on near its edges, to come up around the limb and give it lateral support, being laced together by tapes passed through eyelet holes. Additional steadiness may be given by the application of pasteboard splints to the upper surface of the limb.

The peculiarity of the apparatus, however, consists in the arrangement for changing the dressings without disturbance of the limb. A portion of the wooden splint is sawn out, opposite the knee or other desired point, and the parts above and below are strongly bracketed together; a slide is then adapted to the gap, as in the cut, so that, the limb lying perfectly undisturbed, the slide may be withdrawn, the dressings changed, and the slide replaced. (See figure.)



An iron arch, screwed to the lower end of the splint, serves to protect the foot from pressure or lateral displacement; and by tying a piece of bandage between it and the brackets, a sort of tent-like arrangement is made so as to keep off the bedclothes from the limb.

By crossing the tapes attached to the leathers of the slide, and tying them to the brackets, a greater degree of lateral support may be given to the affected part. When used, the whole splint is of course carefully padded with folded flannel, or raw cotton, each portion separately.

The plan of this apparatus is so simple, that it may very possibly have suggested itself to other surgeons, although no published description of it has met my eye. I have indeed seen an account of a "bracketed" splint for the femur, based upon that of Desault; but cannot now find it or the reference to it.

(N. B.—My attention has been called to an article by Dr. Mettauer, of Virginia, in the *American Journal of the Medical Sciences* for April, 1869, on a "bridged" splint for compound fractures. The plan and construction of this are, however, entirely different from the one which I have described, three slips of wood being hollowed out at points opposite the seat of injury, and applied with bandages.)

ART. XVI.—*Summary of the Proceedings of the Pathological Society of Philadelphia.*

1869. *November* 26. *Suicidal Hanging.*—Dr. PACKARD gave the following account of a post-mortem examination, at which he had been present by invitation of the coroner:—

Mr. ——, æt. 37, a very strongly built and muscular man, on the 8th of November, 1869, hung himself to a banister in his own house, with a piece of picture cord. The cord was composed of a strong twine, wrapped with soft cotton to give it bulk; it was so short that he could scarcely have had more than six inches fall. He cannot have been hanging more than a very few minutes when he was discovered, and a neighbour summoned, who cut the cord. Death had already occurred.

Autopsy, forty-eight hours after death, the body having been in ice. Rigor mortis very strongly pronounced; the upper surface was very pale, but hypostatic congestion of florid hue was present, except where the body had pressed on the bottom of the box; at all such points the paleness was intense. The face was pale, and not at all swollen; its expression was placid. The parchment-like line of the cord, with a slightly-swollen red ridge on either side of it, ran all round the neck, on a level with the thyro-hyoid membrane, which was very strongly crowded backward, so as to make the upper edge of the thyroid cartilage seem to project.

Scalp normal; veins of dura mater congested, but not intensely so; a curious thin clot staining the bone on either side within the skullcap, corresponding accurately to the attachment of the temporal fascia. It formed an arched line perhaps three-eighths of an inch in width; and a corresponding mark existed on the surface of the dura mater. Brain-substance congested. On the upper surface of the convolutions at either side of the longitudinal fissure, were some slight arborescent ecchymoses, and a very small clot effused. A small quantity of bloody serum in each of the lateral ventricles, and the choroid plexus somewhat congealed. Larynx very large and finely developed; the only perceptible lesion about it was the stretching of the thyro-hyoid membrane by the pressure of the cord.

There was no tearing of the muscles of the neck, nor could we discover any displacement or fracture of any portion of the cervical vertebræ. Lungs healthy, but deeply congested, especially at their posterior parts. Heart well developed, strongly contracted, and empty; on its surface a somewhat unusual amount of fat; valves all healthy. Blood dark-coloured and perfectly fluid. Abdominal viscera healthy; liver full of blood, although its surface was somewhat paler than normal.

This examination was made in consequence of a suspicion entertained by some of the family that the death was really caused by poison, and that the hanging was done subsequently as a blind. But of this, it is clear, there was no evidence. All the post-mortem appearances were those of suffocation by the pressure of the cord on the thyro-hyoid membrane. In judicial hanging, where there is a fall, other lesions are generally present, owing to the violent stress put upon the vertebræ, muscles, and ligaments, and the length of time during which the suspension is continued. As an instance of pure suffocation by hanging, therefore, this case is not without interest.

Dr. ASHHURST referred to the observations of Louis, quoted by Boyer, as showing that the occurrence of vertebral dislocation in cases of hanging, was due to *twisting* of the neck rather than to any force exerted in the line of the axis of the body, and instanced a case recently reported by Dr. Forbes to the College of Physicians [*American Journal of Medical Sciences*, October, 1869, p. 420], as confirmatory of this view.

Dec. 9. Case of Dislocation and Fracture of the Body of the last Dorsal Vertebra; the subject of the injury surviving a year, dying of Pyæmia the 369*th day after the accident.*—Dr. CLEEMANN exhibited the specimen and read the following history: David A., æt. 48 years, while working in an ice-house, attempted to jump from a ladder to the "gig," but a short distance away from him: just as he made the spring this apparatus was suddenly lowered, and consequently he passed beyond it and down, through a clear distance of about twenty feet, to the level surface of the ice below, striking upon his feet. I saw him July 23, 1868, about an hour after the accident. The depression of the shock had not then quite passed away; there was tenderness on pressure in the lower portion of the dorsal region, and complete paralysis of the lower extremities. At nine hours later, his general condition was excellent. A more careful examination of the lower extremities demonstrated that, while the paralysis of motion was complete, anæsthesia existed only below the knees, the surface of the thighs being even slightly hyperæsthetic; tested by the hand the temperature of the right extremity was above, that of the left was below, the normal standard. The next day Dr. John Ashhurst, Jr., saw the case with me, and detected some irregularity in the line of the spinous processes, in the region of tenderness.

For some time the case progressed favourably though slowly. The patient suffered at first with uneasiness in the abdomen and general restlessness, but these conditions did not continue long. Two weeks elapsed before the rectum was evacuated of its contents, and then involuntary discharges took place. The urine was drawn off for the first ten days, by which time it had become so viscid from cystitis, that it ceased to flow readily through the catheter; the instrument being then discontinued, the urine dribbled away without difficulty.

The patient complained of some peculiar sensations, apparently not warranted by the condition of the affected parts, as for instance, a feeling of excoriation along the inside of the thighs, and pain in the region of the right hip. Superficial bed-sores appeared but soon healed.

Improvement, as regards the paralysis, was first noticed in the return of cutaneous sensibility in the legs; afterwards in the restoration of muscular power in the thighs; and this amelioration was more rapid in the first months than subsequently. Two months after the accident the patient's back was strong enough to admit of his being carried out.

The following was the condition of the patient on March 30, eight months after the accident: General health is unexceptional; can sit up without support, and with the help of his hands, turn himself over in bed; while lying supine he can raise the right extremity, extended, clear from the bed; he can bend the corresponding knee, but the articulation is sômewhat stiffened; the foot is powerless, fixed in an extended position, with the large toe flexed and inclined outwardly; can flex the left knee, which is stiffened in no degree, but cannot lift the whole extremity from the bed; the foot of this side is as powerless, but not so much drawn as the right. Sensation exists as far as the ankles in both limbs; the right is warmer than the left, and both legs are wasted. There is incontinence of urine, but patient is able at times to hold his water for an hour. The bowels are costive; the sphincter ani partly under control. The nail of one of the great toes came away some days ago, while being pared.

On the 28th of the following June, eleven months after the accident, patient complained of a continued feeling of drowsiness; and I was informed that two weeks before a "boil" had begun to form upon the right buttock, with a swelling in the groin. This so-called boil was now a circular ulcer, about one inch in diameter, covered with a yellowish slough; near it was another gangrenous spot of the same size, black and dry; and the skin, including these places, was of an intense red colour. On June 30th pyæmic symptoms appeared.

In dressing the ulcers, July 15, more discharge was observed to flow from one of them than before; the pus, which was not unhealthy in appearance, was traced to an abscess in the upper and posterior region of the thigh; though it ceased to discharge at times, the pus was flowing at the time of the patient's death, which occurred on July 27, 1869, the twenty-seventh day from the access of the first chill, and the 369th day after the reception of the injury.

Autopsy twenty-six hours after death.—Much emaciated; an irregularity of the line of the spinous processes of the vertebræ very manifest; *rigor mortis* well marked.

Head not examined: *thorax*—pleuræ adherent at the base of the lungs, and the corresponding portion of the pulmonary tissues congested; engorgement more marked in localized spots scattered through the parenchyma, presenting the appearance of the first stage of "secondary abscesses;" liver showed no sign of disease; rest of the abdominal viscera not examined. Bladder moderately distended. In the spinal column, above the position of deformity, there was an abscess of some size situated in the cellular tissue in front of the vertebræ; no connection was traced between it and the displaced portion of the spine. The spinal cord was not examined until two months after the patient's death; and though it had been placed meanwhile in a preservative solution, it was not then in a very fair condition for observation: it was noted, however, that the nervous tissue appeared firmer than normal at the position of injury, and that the spinal membranes were, in some sense, consolidated with it, and more closely attached to the walls of the canal; in one place the dura mater was separated by a collection of fluid, which I took to be altered pus, and seemed to extend to a carious cavity in the body of the last dorsal vertebra. There was a dislocation of the left inferior articular process of the last dorsal over the corresponding part of the first lumbar vertebra, while the body of the former appeared crushed between the two adjacent vertebræ. On the anterior surface of the injured segment callus appeared, giving rise to an oblique ridge, which passed from the left side downwards towards the right, and attached this vertebra to the first lumbar; another more extensive mass, connected with the first, rose over the right side of the eleventh dorsal, involving in its breadth the articulation of the twelfth rib and the adjacent parts. A section made antero-posteriorly through the centre of the vertebræ displayed the body of the last dorsal compressed into a wedge-shape, the base of this figure presenting towards the spinal canal, and encroaching upon it superiorly; this projection arose from the body of the vertebra being spread out as it were, and from the slant forward of the vertebra next above; the diameter of the spinal canal was narrowed in this manner from before backwards at least one-half; the greatest compression being on the right side. The inter-vertebral foramen along the injured vertebra on the right side was impinged upon and distorted; and a portion of the arch of this vertebra on the same side had been absorbed.

It is evident from the condition of the vertebræ that the injury was the result of "indirect force"—the body having been violently bent forward, while at the same time it was forciby twisted towards the right side.

In the management of the case no attempt at reduction of the dislocation and fracture was made. Among the pyæmic symptoms, the peculiar sweetish odour of the breath, described as so uniformly present, was not observed, and the yellowish tinge of the skin and conjunctiva also considered so characteristic of pyæmia was present in but a slight degree.

Fragments of a Bug removed from an External Auditory Meatus.—Dr. HARLAN exhibited the specimen, and gave the following history:—

Mr. J., a medical student, consulted me on account of a slight feeling of discomfort in his right ear—a feeling of fulness, and an itching sensation which disposed him to pick at it with the point of a pencil, or anything of the kind that he might chance to have in his hand; and a little dulness of hearing occasionally, which he attributed to both ears. He stated that usually his hearing was excellent, and that there was no difference in the hearing power of his ears. On testing the hearing distance with the watch, it was found to be several feet less on the right side than on the left, though quite good. I found a brown mass in the meatus, which I took to be hardened wax, and attempted to remove it with the syringe. As this made no impression upon it, I removed it piecemeal with the rectangular forceps, not without some delay and difficulty on account of the acute pain that the slightest pressure gave. It proved to consist of the head and first section, two wings, and three legs of a large beetle. The head lay almost in contact with the membrana tympani. Mr. J. immediately called to mind that thirteen years before, when a child, he was aroused at night by an agonizing pain in the ear, which was not relieved until a doctor, who was sent for, poured oil into the meatus. He has never had any pain in the ear since, or discharge, or other inconvenience than the slight annoyance that induced him to consult me. After the removal of the foreign body nothing abnormal could be discovered but a slight congestion easily accounted for by the irritation caused by the extraction. A careful examination made several months afterwards discovered absolutely no difference between the right and the left ear, either in the appearance of the external meatus and membrana tympani, or the hearing distance.

Rupture of Liver.—Dr. C. T. HUNTER exhibited the specimen and read the following history :—

J. T., admitted into Pennsylvania Hospital November 26th, 1869. That morning the patient had fallen from a heavily loaded ash-cart, which passed over the anterior surface of his body at the lower portion of the thorax, obliquely from right to left. An hour later he was brought into the hospital and presented marked symptoms of shock. He had, however, no hemorrhage from the nose, mouth, or ears. There were no external injuries save some slight contusions at lower margin of chest. He complained of *intense* pain and great tenderness in right hypochondriac and both lumbar regions. Later in the day he had nausea, and everything that he ate or drank was almost immediately rejected. The injecta contained no traces of blood. His thirst was excessive. He could lie with comparative comfort only on left side. Late in the evening I drew his urine off, he being unable to void it, and found it free from blood. I then, for the first time, detected a fracture of the ninth, tenth, and eleventh ribs of the right side. There was no emphysema or pneumothorax. He died on the following morning at 5 o'clock, without a struggle.

Autopsy.—Right lung and pleura uninjured. Ninth, tenth, and eleventh ribs of right side fractured transversely. Abdomen distended with bloody serum and recent blood-clots, the latter collected principally about the liver. The liver presented an extensive laceration which begins at anterior margin of the fissure that accommodates the gall-bladder on the concave surface, and runs directly backwards parallel with the longitudinal fissure, for at least four inches, involving the entire thickness of the right lobe. The gall-bladder is not injured. The biliary ducts most probably are involved. The right kidney, on its posterior surface, presents a superficial laceration of about two inches in length. The convex margin of left kidney also presents a slight laceration.

The specimens being referred to a committee to investigate the minute changes in the organs injured, Dr. W. F. Norris reported that the committee had carefully examined the specimens without finding any material lesion.

1870. *January* 13. *Epithelial Cancer of the Hand.*—Dr. DUER presented the specimen and read the following history :—

This arm was removed from Mr. T., æt. 65, Dec. 31st, last. The specimen is a cancroid or cancerous growth from the hand, covering the whole of its posterior and a portion of its lateral aspect. It appears from its history, as derived from the patient himself, that it had existed in the form (and probably condition) of a simple wart for more than four years, attracting no other attention than grew out of the fact of several members of his family having already died of cancer. Somewhat less than a year since he became alarmed at the appearance of a slight inflammation at its base, and accordingly requested the opinion of his family physician, who represented that it probably contained a little pus, and which he sought to evacuate by puncture with a needle. None, however, appeared, and the point of puncture soon became a centre of ulceration, painful and fungoid. The ordinary applications to such conditions failed either to furnish relief from the pain or arrest of the extension of the ulcerative process, and the cancroid mass has steadily grown on to the condition you now perceive it. For the last four months and occasionally during the summer the patient has required large and continuously repeated doses of some anodyne, to maintain even tolerable comfort. During the later periods he has never had a full night's sleep up to the date of the operation. The character of the pain was of the ordinary lancinating kind, and somewhat influenced by the position of the limb. Another distressing feature of the case was the extreme offensiveness of the discharge. The ulcer itself, in life, presented the appearance of a partially developed cauliflower dyed a bright crimson and varnished, so "angry" did it look.

When I first saw the patient, on the day mentioned, his aspect was scarcely that of a cancerous subject, but of a man with a naturally vigorous constitution, well nigh worn out, and dispirited with pain. His general health was otherwise good; that is, his functions had been normally performed and he had scarcely been sick in his life. The cancerous cachexia could scarcely be said to be at all pronounced. He was anxious to submit to any measure that would promise him relief from the tormenting conditions just mentioned. And as to the propriety of removal of the limb at or about the elbow there seemed to me and my colleagues no question. Of the considerations that influenced the point of selection, and the particulars of the operation itself, I will not consume the time of the Society in discussing. Apart from the perfection of the specimen, the point of most interest in the case is one just alluded to, viz., the existence of cancerous disease in other members of the same family. This is the fourth one that has come under my observation, and two additional ones have been reported to me. The first, a brother of my present patient, died, several years past, with a condition almost precisely the same as this and situated in the same place. No operative interference was permitted. The second case presented a scirrhus of the mammary gland, which I removed at Burlington, three years ago this fall, the patient living about four months thereafter, and dying of a secondary deposit in the lungs. Her death was a painless one, and there was no return of the disease at the seat of removal. The third case was a niece of Mr. T., and was much the same as the last. I removed her breast also at Bordentown, in the fall of 1866, and she died as the last, a painless death, the following summer, from secondary deposit in the lungs, without a return of the disease in the cicatrix.

I have since heard from Mr. T.'s case, and the report is highly satisfactory, both as regards the reparative process in the wound, and the comfort of the patient. He represents that he has not been so free from pain or slept so well for four months as since the operation.

The specimen was referred to a committee, consisting of Drs. L. S. Bolles, F. A. Hassler, and O. H. Allis, for microscopic examination, who reported "that the specimen examined showed a fibrous stroma, with numerous epithelial cells, polygonal, elongated, and irregular in shape; the contents of the cells in some instances contained distinct nuclei with a single nucleolus, but by far the larger portion were filled with granular matter."

Dr. PACKARD desired to ask if he had rightly understood Dr. Duer to speak of the deaths as "painless," in the cases of internal cancer after operation, to which Dr. D. had referred. He had several times seen the most intense suffering in such cases, but never anything like comfort. Of one case in particular, that of a woman who died of intrathoracic cancer in the Pennsylvania Hospital in 1855 (after removal of the breast some eighteen months previously), he had a most vivid recollection. In another case, now under his care in private practice, the sufferings of the patient were extreme, in spite of the free use of anodynes.

Dr. DUER replied that Dr. Packard had rightly understood him. In one case he had witnessed a *post-mortem* examination, where the patient appeared to die of apnœa. The lungs were found filled with gelatinoid masses of every size, from a millet-seed to that of a pigeon's egg. Dr. D. knew no particulars in the second case.

Dr. WILLARD recalled a case where the left breast was removed, and six months later the disease returned in the cicatrix. The patient apparently died of exhaustion from repeated hemorrhages, and at the *post-mortem* there were found extensive cancerous nodules in the liver. At no time had she suffered pain in hepatic region.

Dr. ASHHURST said that he, too, could recall an instance of painless death from internal cancer, recurring after the removal of an external growth: he had removed in February, 1866, at the Episcopal Hospital, a scirrhous breast from a woman 64 years old, in whom the disease had existed four years. The wound healed readily; but in May, 1867, she returned with a small cancerous tubercle, an inch and a half above the line of the cicatrix of the former operation: this tumour was likewise removed, and the wound again healed without difficulty. During the same summer, however, she was again admitted to the hospital, without any external evidence of disease, suffering no pain, and complaining merely of loss of appetite and debility. Death followed, without any change of symptoms, and the autopsy (notes of which had been furnished by Dr. C. H. Burnett) revealed a cancerous growth on the pleural surface of the costal cartilages beneath the old cicatrix, the organs of the body generally being found healthy.

Dr. ASHHURST referred to Dr. Duer's remark, that this patient presented no evidences of cancerous cachexia, and alluded to the view of the late Mr. Collis, of Dublin (with which view the results of Dr. Ashhurst's own observations coincided), that cachexia only attends those cases of cancer which involve important viscera and thus interfere with the process of sanguification. Hence extensive *external* cancer may exist for years, and even prove fatal, without there having been at any time any cancerous cachexia (so called), while a very limited amount of carcinomatous disease in an internal organ may cause an early development of cachexia in its most marked form.

Dr. KEEN also recalled a case which presented itself at the St. Mary's Hospital, in a huckster woman weighing from 175 to 200 pounds, who was in remarkably good health, though she presented a very large cancer of the breast. There was no evidence of cancerous cachexia, though the growth had been present eight months. It appeared to have been produced, as far as circumstantial evidence can be regarded, by local injury, the patient having fallen in passing down stairs, and having struck her breast on some sharp obstacle, immediately after which the tumour began to develop. At the time Dr. K. saw her it was as large as a fist, with an ulcerated surface as large as the palm of the hand.

Dr. RHOADS mentioned that he had a case under observation, in which mammary cancer had existed more than six years, presenting a very large mass, ulcerated and angry in its appearance, and the patient evidently near her death, without manifesting, however, the slightest appearance of cachexia. The mother of the patient perished with cancer of the stomach.

Dr. STILLÉ referred to the case of a woman who called at his office presenting a tumour of the right breast about as large as a pigeon's egg. The woman was remarkably stout, exhibiting every appearance of health in complexion and expression. He was unable to decide as to the nature of the tumour, and referred her to a surgical friend, who decided it was cancer, and recommended its removal by an operation. This was done, the tumour having increased somewhat in the interval. When the wound had almost healed, the edges began to granulate extravagantly, and in a few weeks there was formed an enormous cauliflower excrescence, as large as a child's head at three months. Up to the last moment there was no cancerous cachexia, nor anything in the patient's face to suggest the nature of the disease of which she was dying.

Tumour in the Right Anterior Lobe of the Cerebrum.—Dr. C. B. NANCREDE presented for Dr. J. R. F. BELL the specimen, with a history of the case: A woman æt. 27 was admitted to the Episcopal Hospital in Dec., 1868. She was subject, at irregular intervals, to epileptiform convulsions, which were, for the most part, unattended by loss of consciousness. There was always more or less cephalalgia in the intervals, but after each of these attacks it was increased to an intense degree. The pupils were normal, excepting when under the influence of conium, when the left pupil was largely dilated. Some time in November, 1869, after a much more severe attack than usual, which was attended with unconsciousness, entire loss of power over the left side, with the exception of the fingers, as well as impaired sensation, was found to have occurred.

She remained in about the same condition, with increased cephalalgia, until the second week of December last, when another convulsion was followed by total paralysis of the left side. About ten days afterwards she died, apparently from the lung trouble, though slightly comatose.

The *post-mortem* examination showed both lungs extensively diseased, with a cavity in one. There was found to be inflammation of the membranes of the brain, with easily separated adhesions along the longitudinal fissure and base. On the upper surface of the right lobe was an old adhesion, so tough as to require careful dissection to separate it.

On making a section beneath this, there appeared to be a cicatrix; upon dividing which, a hardened mass was found, which could be turned out of the softened brain substance. Immediately surrounding this mass there was softening and reddening of the brain substance. The rest of the organ seemed healthy, though more softened than could be accounted for by *post-mortem* change.

Dr. ASHHURST referred to the differing views of pathologists as to the connection of convulsions with lesions of various parts of the brain: thus Mr. Solly looks upon convulsions as especially characteristic of inflammation of the tubular portion of the hemisphere. Dr. Watson, on the other hand, considers that convulsions are more apt to attend inflammation beginning in the pia mater or arachnoid. Finally, Mr. Callender, one of the latest writers on the subject, regards convulsions as particularly associated with disease about the track or distribution of great vessels, especially of the middle cerebral arteries, and with the shock of a hemorrhage, and finds them particularly connected with left hemiplegia, and with disease of the right hemisphere, external to the optic thalamus and corpus striatum.

The specimen was referred to a committee, consisting of Drs. William Pepper, Schell, and Parry, which made the following report:—

The tumour was irregularly lobulated, and measured about one and a half inches across its base, which was closely adherent to the under surface of the dura mater, the mass itself being imbedded in the brain substance. It occupied a portion of the upper and outer part of the right hemisphere, corresponding to the middle portion of the corpus striatum; and extended fully one and a fourth inches into substance of the hemisphere, being also surrounded by a layer of softened brain tissue. Upon making a section of this tumour, it was found to present two round nuclei of cheesy matter, one-third of an inch in diameter each, surrounded by a quite firm grayish tissue.

Microscopic examination of the central cheesy portions showed them to be composed entirely of oval or irregularly triangular cells, containing much granular matter. Upon treatment with acetic acid, these cells closed up to a considerable extent, and revealed a varying of persistent granules of large size, but no true nuclei. The size of the cells varied, many being smaller than a white blood cell, others somewhat larger. A certain number of spindle-shaped cells were seen mixed with those above described, but neither any true stroma nor any vessels could be detected in these cheesy nodules. There was also a large amount of free granular fat. The dense grayish layers surrounding these nodules proved to consist of a highly vascular fibro-cellular tissue; the vessels of which were large, tortuous, with thin walls and very imperfectly developed perivascular sheaths, and the cells chiefly large spindle-shaped connective tissue cells.

January 27. *Enlarged Inguinal Glands.*—Dr. R. M. TOWNSEND presented the specimen and made the following remarks:—

These glands are principally important on account of their anatomical relations. In making a dissection for inguinal hernia, they lay along the course of the external iliac artery, the part protruding through the external abdominal ring. As they pushed the peritoneum before them, the constriction between the two much resembled a strangulated hernia. On removing the first of them, it presented much the appearance of a testicle. They were firmly adherent to the sheath of the internal iliac artery and fascia of the internal iliac muscle.

The specimen was referred to a committee, consisting of Drs. Edward Rhoads, R. M. Townsend, and J. V. Ingham, who reported "That they found the said specimen to consist of a cluster of enlarged inguinal glands, presenting under the microscope the granular and corpuscular elements found in hypertrophy of the lymphatics without malignant structure."

Case of Excision of the Elbow.—Dr. ASHHURST exhibited the recent specimens from a case of excision of the right elbow-joint for chronic synovitis, followed by ulceration of the cartilages and erosion of the articulating extremities of the humerus and ulna. The patient was a man aged 25, who had been disabled by the condition of his joint for five or six months. The origin of the disease could not be ascertained. The operation was done by the simple longitudinal incision, and the portions of bone exsected were very limited in extent: the head of the radius being healthy, merely its articular surface was removed. The chief points of clinical interest were in reference to the diagnosis, and the peculiar line of incision. The painless character of the swelling, and the degree to which passive motion could be carried, had led some of the gentlemen who saw the case to doubt the interarticular nature of the affection. The peculiar shape of the part, however, with the helplessness of the limb, and the development of grating upon making flexion and extension while the patient was etherized, were, Dr. Ashhurst thought, sufficiently significant of the true state of affairs. The longitudinal incision, which was adopted in this case, Dr. A. considered preferable to either the T or H incisions, as making a smaller wound, and one which had no tendency to gape. The operation, though somewhat more prolonged by this method, was sufficiently simple, and presented no particular difficulties.

The specimens showed very well the characteristic inflammation and degeneration of the articular cartilages and synovial membrane, the bone being hyperæmic and eroded at certain points.

Feb. 10. *Chronic Inflammatory Deposit in Testicle.*—Dr. C. T. HUNTER presented specimen, and read the following history:—

T. C. M., æt. 24, grocer, admitted into Pennsylvania Hospital January 28, 1870, for chronic orchitis; single; temperate habits; no history of tubercle or carcinoma. Denies having had syphilis, but acknowledges having had ulcerated sore throat some eighteen months ago, which has left a communication between his nose and mouth, through the soft palate. Within the last eighteen months, has had two separate attacks of iritis in the left eye. About four years ago contracted gonorrhœa. This was treated with balsam copaiva, and after the subsidence of the acute symptoms, used astringent injections. At the end of six weeks, the gonorrhœal discharge had ceased, but in the fortnight following, his right testicle swelled to the "size of his fist," as he expressed it. During the attack of gonorrhœa, suffered considerably from irritation at the neck of his bladder; this vesical trouble persisted for seven or eight days after the urethral running had been checked. The treatment for orchitis consisted of applications of lead-water and laudanum to the scrotum. At the expiration of a week, the testicle had nearly resumed its normal size. Some eighteen months later, patient for the second time noticed that his right testicle was slowly enlarging, his attention being attracted to it by dull-aching pains in the gland, a feeling of weight, etc. He seemed to think that the second attack was caused by lifting and carrying heavy parcels. Local depletion by means of leeches to the cord, anodyne and astringent applications to scrotum, were only partially successful in reducing the size of the gland. From that time till the date of his admission into the hospital, the gland has been somewhat enlarged, and quite sensitive. Small abscesses in the walls of the scrotum have been evacuated from time to time, and two days before coming into hospital, four or five ounces of a straw-coloured fluid were drawn off from scrotum. At a consultation of the surgical staff, it was determined to remove the diseased gland; the patient himself was very anxious to have the operation performed, as the disease had been a source of great annoyance to him for the last year and a half. On the 2d of this month castration was performed by Dr. Hewson.

The cord was secured by a medium-sized acupressure pin passed under it, near spine of pelvis, and a silver wire looped over it, pressing the cord firmly against the pin; after which the testicle was exposed and removed by a division of the cord a short distance below the pin. Very little hemorrhage followed. The wound of the scrotum was closed by sutures, and the dry earth powder applied.

The specimen was referred to a committee, consisting of Dr. Tyson, C. T. Hunter, and Wharton Sinkler, which reported that they found the deposit to consist of two masses, each about four lines in diameter, and occupying the body of the testis or its proper secreting portion. These masses are separated by an interval about two lines wide.

Microscopic examination reveals, in addition to the small non-nucleated corpuscles, resembling the bodies usually described as tubercle corpuscles, a certain number of compound granule cells, and much free granular and globular oil. There seems to be in the deposit no traces of the tubular structure of the testicle.

There seems, therefore, but little doubt that this deposit is of the chronic inflammatory kind.

Dr. C. B. NANCREDE presented for Dr. J. R. F. BELL a specimen of *Cancer of the Pancreas*, and read the following history:—

The patient from whom it was removed, a man æt. 50, came to the Episcopal Hospital some time in September, 1869, complaining of pain in the left hypochondrium, with loss of flesh, strength, and appetite; also of vomiting, and that the ejecta were sometimes tinged with blood. On examination, a hard tumour, about the size of a walnut, was perceptible rather to the left of the epigastrium, which rose and fell with the movements of respiration at first, but later seemed fixed. This tumour he had first noticed in the previous March, and stated that then its position was higher up.

Pulsation could be distinctly felt, which remained unaltered by position, showing that the tumour was adherent to some vessel. There was also a bruit heard over this tumour, which was not propagated along the aorta, nor was there any thrill. This tumour was the seat of severe lancinating pain, not increased by the ingestion of food. Digestion remained good, and the man gained flesh, until some eighteen days before death, when nothing but stimuli could be taken. Until within a week of death, no diarrhœa was present, even when olive oil was given as a test. Fats were largely partaken of and relished by the patient.

During the last three months of life marked œdema, with occasional suppression of urine, occurred. There was a marked cachexia.

The post-mortem showed a large hard mass in the position of the pancreas, adherent to the liver, involving the stomach, in one position of which a marked inflammation and erosion were found. There was considerable ascitic fluid, rendered turbid by lymph.

The specimen was referred to a committee consisting of Drs. William Pepper, S. W. Gross, and Horace Williams, which reported that "upon making a section, the tissue of the tumour was found to be dry, not yielding any 'cancer-juice' on pressure, somewhat fibrous, but quite friable. Microscopic examination showed a scanty stroma in places consisting of delicate fibres, in others of long, fine, spindle-shaped cells. There were also very numerous oval and round cells, varying in size from less than that of a white corpuscle to double that size, and containing but a single nucleus. There were also many smaller nucleus-like bodies lying free among the cells. The tumour was far advanced in fatty degeneration;

the cells contained dark granular matter or fine granular fat, and there was much free oil, with numerous large crystals of cholesterine."

Feb. 24. *Rheumatoid Arthritis; Eburnation.*—Dr. WILLARD presented the specimens and furnished the following history:—

These specimens were discovered while engaged as assistant demonstrator in the anatomical rooms of the University of Pennsylvania, and therefore are unaccompanied by previous history. They are the scapulæ and humeri. The head of the right humerus was found displaced from the glenoid cavity, and occupying a position upon the anterior inferior face of the neck of the scapula, where it had formed a new articulation; osseous tissue being thrown up about it in such abundance that the cavity was nearly as deep as the original glenoid. Glenoid cavity itself was filled with osseous deposit to such extent that but little of its former appearance remained, and the whole head and neck of scapula were greatly roughened with same growths. Coracoid process also somewhat implicated. The displacement of humerus had apparently been effected by a gradual absorption of the rim of the glenoid, and the subsequent deposit of this new bone had confined it in its abnormal position. On left side same changes had begun to take place, but had not yet reached such an advanced state, and humerus was not displaced, although glenoid cavity was excessively roughened. The head of humerus and inferior face of acromion presented a most beautiful specimen of eburnation, being polished to the utmost brilliancy. All articulations of the skeleton were similarly affected, in varying degrees.

Cystic Distension of Fallopian Tube.—Dr. WILLIAM PEPPER presented a uterus and appendages. The right Fallopian tube is healthy. The free extremity had become attached to the side of the uterus, and had become distended with clear watery fluid, so as to form a thin-walled cyst three inches in diameter. The Fallopian tube was also largely distended throughout its entire extent.

March 10. *Two Cases of Bony Deposit in the Eye.*—Dr. HARLAN presented the specimens, and read the following history:—

The first is from a patient operated upon at the Wills Ophthalmic Hospital, and the following record was made of the case by the resident surgeon, Dr. Wilson: "S. S., female, æt. 46, applied for admission to the hospital September, 1869, suffering severely with pain in the left eye and sympathetic irritation of the right. States that, thirty years ago, the left eye began to fail after some inflammatory trouble (of which no definite account can be obtained). Five months afterwards, the sight of that eye was entirely gone; from this time, however, the eye gave her no trouble until three months ago, when, after using the other eye for some time in sewing by lamplight, the blind one began to be very painful and has troubled her constantly since. About three months before admission, the right eye began to fail. She noticed that it soon became fatigued with sewing or reading, and that it was very painful in a bright light, as sunlight, though not at all so when shaded. At the time of admission, she could not use her eye for small objects a minute without suffering a stinging sensation in it and intense pain in the other eye. The left eye was hard and somewhat atrophied, and the cornea opaque. No pain on pressure. Above the cornea, and slightly to the nasal side, there was a small sclerotic staphyloma."

The left eye was extirpated, with immediate relief from pain. I am unable to say how far she regained the use of the other eye, as the patient lived at a distance and left the hospital in a few days.

Dissection of Globe.—Sclerotic wrinkled from shrinking of contents, its structure apparently not altered. Cornea opaque and flat. Nothing remarkable in the appearance of choroid. Iris adherent to cornea; when separated from it, which is easily done, the membrane of Descemet follows it and is seen as a transparent curtain across the pupil. Lens of normal size, or perhaps rather large, yellowish-white, and as hard as a pebble. Hyaloid fossa lined with a firm tough membrane, having very much the appearance of cartilage. No remains of vitreous.

The retina having, as is usually found to be the case in atrophied bulbs, left the choroid and followed the shrinking vitreous, is recognized in shreds of tissue stretching from the optic nerve entrance to the ora serrata. Within the choroid, and nearly equal to it in extent, is a thin but firm bony shell, terminating anteriorly in a ragged edge, and deficient posteriorly at the position of the optic disk.

The other specimen is from a patient of Dr. Morton's, upon whom I assisted him to operate. The globe was extirpated on account of sympathetic irritation of the other eye. There was nothing unusual in the history of the case; it was one of long-continued inflammation. There was no opportunity for careful dissection. The bony formation in this case is a disk that occupied the fundus of the eye, extending to about one-third of the distance from the optic nerve entrance to the ora serrata. Like the other specimen, it lay immediately within the choroid, and is deficient at the point corresponding to the optic disk.

The following is the result of a microscopical examination made by Dr. W. W. Keen :—

CASE I. The bony development showed very distinct but imperfectly developed lacunæ, but no distinct Haversian canals were seen. The retina was much firmer than normal, but this is partly if not wholly due to the alcohol in which it has been kept. The main bulk of it was seen to consist of the atrophied bloodvessels, with some fibrous tissue and an enormous quantity of small oil globules. Quite a number of crystals of cholesterine were also seen. The lens consisted of an outer hard capsule and an inner friable mass, white and chalk-like. The latter was mostly carbonate of lime, as it effervesced with acids. The outer capsule consisted of an indistinct granular substance, effervescing with acids, but possessing no true bone corpuscles. The choroid consisted almost wholly of fibrous tissue, with a few bloodvessels partly atrophied. The pigmentary layer had disappeared, save here and there a single cell.

CASE II. The bony portion showed very imperfectly developed lacunæ, but a number of well-developed Haversian canals. The retina was rather firmer than usual, probably owing in part to the alcohol. It consisted of a very few vessels, with a little fibrous and granular matter, and a large number of oil globules and multitudes of crystals of cholesterine, occurring both singly and in groups. Choroid as in the first case.

A number of similar formations are recorded, and there has been a good deal of discussion from time to time in regard to their nature, particularly in reference to the existence of Haversian canals. Mackenzie says, "They present traces of lacunæ under the microscope, but no Haversian canals." Stellwag speaks of "indications of Haversian canals." He says: "The ossification of these new formations begins from the external layers, while new connective tissue layers are placed on the inner surface." Virchow speaks very decidedly on the subject in the following extract which Dr. Keen has translated for me from the work on "Morbid Tumours:"—

"They are most frequent as small osteomata on the free surface of the choroid. They are mostly flat bones, which seem to lie on the vascular tunic, or to have taken the place of the retina, and therefore have often been described as ossifications of the retina. They generally lie in the posterior part of the eye; sometimes, however, stretching quite far forwards. They consist of good, firm, osseous tissue, moderately rich in vessels, proceeding, as a rule, from connective tissue, but sometimes from cartilage. That they are the result of chronic choroiditis is certain."

From their position next the choroid, and from the great difficulty, in many cases, of detecting any traces of the retina, it is not surprising that these formations have often been mistaken for ossifications of the retina; and, indeed, Stellwag says, that when any part of the degenerated retina remains in contact with the bony plate, it also becomes bony. If new layers of connective tissue are formed on the inner surface after the outer layers are ossified, it would seem that these bony plates are capable of independent growth. As they are among the recognized causes of sympathetic ophthalmia, it is worth while to bear in mind the possibility of their presence in deciding upon the operation to be performed. It is evident that not much could have been accomplished in either of these cases by any operation less thorough than that of extirpation of the globe. An interesting point in the history of the first case is the fact, that nearly thirty years intervened between the inflammation that destroyed the sight of the left eye and the appearance of sympathetic irritation of the right.

Suppression of the Urine; Jaundice.—Dr. HUTCHINSON presented the liver and kidneys of a man, æt. 40, who died in the Pennsylvania Hospital March 7, 1870. The following points of his history are of especial interest in connection with the disease of which he died: In the year 1860 he contracted gonorrhœa, which did not yield very readily to treatment, and seems to have given rise to a stricture of the urethra; for, on several occasions during the last seven years, catheterization has been resorted to to relieve his bladder of its contents. He has lived a roving life, but has never been excessively intemperate, nor has he ever had a chancre. On the 23d of February he found he was unable to pass his water, but does not appear to have sought medical assistance until the next day. It is not known whether or not the physician applied to succeeded in introducing a catheter into his bladder; but as no relief was obtained, he applied for and gained admission into the surgical wards of the Pennsylvania Hospital on the evening of February 24th. No difficulty was experienced in passing a catheter into the bladder; but as no urine flowed through it, percussion was performed over the hypogastric region, and the bladder found to be empty. Twelve hours later, ten fluidounces of a very dark-coloured liquid, which contained albumen, and under the microscope a large number of red blood corpuscles were passed naturally and without difficulty. The next evening jaundice supervened.

Feb. 27. The patient was transferred to the medical wards, and the following is from the notes taken at that time: "No urine has been passed since that above alluded to; percussion over the region of the bladder still gives a clear sound; the pulse is 82; the respirations slightly more frequent than in health; the tongue is covered with a dry and brownish coating; the teeth are incrusted with sordes; tenderness in the region of the gall-bladder; no increase or diminution of hepatic dulness; tympanitic resonance over abdomen. Patient is excessively restless, and throws himself about in bed while answering questions; he answers questions intelligently; complains of excessive thirst."

The treatment adopted consisted in the administration of diuretics and anodynes. The next day a small quantity of urine (not more than f℥iij) was passed. This was found to contain albumen, but did not show the presence of biliary colouring matter when tested with nitric acid. A systolic murmur was heard at base of heart to left of sternum. The patient not having had a passage from his bowels since he left the surgical ward, was ordered an injection, which brought away a large quantity of feces, which were not light-coloured. On the first of March three more ounces of urine were passed; incontrollable vomiting and hiccough were added to the other symptoms. A few observations of the temperature of the surface showed that this was low: the thermometer in the axilla on two occasions indicating 95°, and on another 97° Fahr.

The symptoms above detailed, with the exception of the secretion of urine, which became quite free on March 4th, gradually increased in severity, the vomiting being unchecked by all the remedies employed. Diarrhœa also supervened, so that the nutritious enemata, with which an attempt was made to nourish the patient, were rejected. There was at no time somnolence or tendency to stupour. The patient sank from asthenia on the morning of March 7th.

The autopsy was made the next day, twenty-four hours after death. The body was emaciated and the skin jaundiced; the head not examined. Chest: Lungs somewhat engorged at their posterior and lower parts, but were otherwise healthy; no pleural adhesions or effusion. The heart was healthy, with the exception of slight thickening of the mitral valves. Abdomen: Liver enlarged, engorged with blood, and deeply stained with bile; gall-bladder filled with viscid bile; kidneys enlarged, of a pale-yellow colour, presenting the gross appearances of chronic tubular nephritis. A stricture of the urethra was found in its membranous portion, and an abscess in one of the lobes of the prostate gland.

The microscopic examination was made by Dr. J. G. RICHARDSON, who found the evidences of the first stage of tubular nephritis. The straight portions of many tubes were choked with granular matter, which prevented the descent of the urine.

Dr. PEPPER said this case suggested to him that of a soldier belonging to one of the regiments passing through the city during the late war. He had a stricture of the urethra, and on reaching this city was seized with retention of urine. A physician practised forcible catheterization on a Sunday afternoon. This was followed by vomiting and complete suppression of urine. The medical man kept him at his house during the night, and on the next morning brought him in his carriage to the Pennsylvania Hospital. In a very short time he became intensely jaundiced, with symptoms leading to the diagnosis of an abscess of the liver. He remained in this condition, apparently dying, for two weeks, when he began to expectorate a purulent matter, which did not respond to Pettenkoffer's test, though it was thought to come from an hepatic abscess, which had discharged through the lungs. He slowly gained strength, and insisted upon proceeding homewards, although still very ill.

REVIEWS.

Art. XVII.—*Studien aus dem Institute für experimentelle Pathologie in Wien aus dem Jahre*, 1869. Herausgegeben von S. Stricker. Wien, 1870.

Studies at the Institute for Experimental Pathology at Vienna, for the year 1869. By S. Stricker. Part I., with four wood-cuts and two lithographic tables. pp. 110. Vienna, 1870.

The editor of this work, Dr. Stricker, is Professor of Experimental Pathology at the University of Vienna. He is the author of a late manual of histology,[1] the character and standing of which may be known from the fact that a translation of the first volume is announced by the New Sydenham Society as one of the volumes in the list of publications for the current year. He has attained to a high rank among the physiologists and microscopists of Germany, by his minute and conscientious researches, an account of many of which have been published in the proceedings of the Royal Academy of Sciences of Vienna. Among the most interesting and important of his observations are those on the minute structure of the capillaries (in which he shows that the red corpuscles often stick in the walls and thence escape—diapedesis—in contradistinction to the active wandering out of the colourless corpuscles), and also those on the development of the embryo in the eggs of the trout and batrachians.

The volume before us is a contribution to the study of the pathology of inflammation. In this subject the researches of Cohnheim, and his views as to the origin of pus-cells from the colourless corpuscles of the blood, have effected what Villemin's discovery of the inoculability of tubercle has done for the doctrine of tubercle—thrown the whole subject into a state of active fermentation, unsettled old views, given rise to new ones, and awakened a spirit of research which promises to yield us something definite and reliable upon this important subject. As an instance of the transition period in which we now are may be mentioned the fact that Mr. Simon, in the article "Inflammation," of the second edition of Holmes' *System of Surgery*, postpones all consideration of the pathology of the process, until the publication of the Appendix, because "all previous doctrines on the subject are just now in the very crisis of a consideration of which the morrow cannot be foreseen."

Although the title page bears the name of Dr. Stricker, he is the writer of but a few of the papers, the majority are from the pens of men working under his direction and supervision. His name, however, is guarantee of the reliability of the observations recorded, for, whether as author, teacher, or investigator, he stands second to none.

The following is a schedule of the contents of the volume under notice:—

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[1] Handbuch der Lehre von den Geweben des Menschen und der Thiere. Leipzig, 1868.

On the present condition of the doctrine of inflammation. Introduction. S. Stricker.

Experiments upon inflammation of the cornea. Wm. F. Norris, and S. Stricker.

Upon cell division in inflamed tissues. S. Stricker.

On the relation of vessels and nerves to the inflammatory process. S. Stricker.

On traumatic encephalitis. Dr. Frederick Jolly, Munich.

Investigations upon furrowing (Furchung) and membrane formation of the hen's egg. Dr. Jos. Oellacher, Innspruch.

On endogenous formation of pus-corpuscles in the conjunctiva of the rabbit. Dr. L. Oser.

On the inflammatory changes of mucous fibres. Dr. Janovitsch Tschainski, St. Petersburg.

On tissue changes in the inflamed liver. Dr. A. von Hüttenbrenner.

On the conduct of the fixed cells of the tail of the tadpole after mechanical irritation. E. Klein and H. Kundrat.

Inflammation and suppuration. Résumé. S. Stricker.

It will be seen therefore that the work is not a complete treatise, and does not afford us an opportunity of presenting that entire view of the subject and those definite conclusions which we hope one day to record.

Yet the evidence it bears upon its pages of the patient and laborious efforts being made to overcome the difficulties of this most intricate subject, alone, makes it well worthy of our consideration, while the positive additions it makes to our knowledge are by no means insignificant. We will try to cull something from it for the interest and benefit of our readers.

Dr. Stricker very appropriately heads his introduction with a quotation in our language from Bennett: "Inflammation is so intimately interwoven with the theory and practice of medicine . . . . that in all ages it has been made the pivot upon which the medical philosophy of the time has revolved." This quotation indicates, too, what we find to be true, that the labours and the opinions of pathologists outside of Germany have not been overlooked, and are duly estimated. He then goes on to notice the close relation which has always held between the progress of microscopical investigation and the doctrine of inflammation, and that this relation has been especially marked in regard to increasing or changing knowledge as to the genesis and growth of cells. But as we have penetrated with improved instruments deeper into the tissues, our general idea of the complex process called "inflammation" has been weakened; to an idea drawn from the bedside and the autopsy has succeeded a definition of the minutest processes of the tissue elements. Of late there has been given to one of these minute processes an undue prominence, and it is taught that the essence of the process consists alone in the passage from the vessels of the colourless corpuscles of the blood.

> "The new current of opinion has brought us only a doctrine of suppuration, and forced upon us the following alternative: We must either return to the old views, allowing the inflammatory process to have terminated with the action of the vessels, and cease to talk any more of an inflammation of non-vascular tissues, or we must not do this, but place the clinical idea—according to which suppuration is a consequence of inflammation—upside down, and derive inflammation from suppuration."

This leads him into some historical disquisition, not, however, of the subject in general, but in relation to some questions which are yet agitated and which must be taken into consideration whenever new investigations are undertaken.

The first point of interest which presents itself is another discoverer of the origin of the pus-corpuscle from the colourless blood-corpuscle. We say "another," because we so lately presented the fact that Waldenburg, in his history of the doctrine of tubercle, showed that Addison[1] long ago taught this origin. Now it is Waller[2] who, in 1846, published his observations and experiments upon the tongue of the frog, the illustrations of which are "so true to nature that we cannot doubt the accuracy of the observations." In a note, Dr. Stricker quotes the following paragraph from Waller, which we copy, together with his comment upon it, because this is a point of prime importance at the present time, and one upon which there exists wide difference of opinion.

> "In some instances the manner in which the corpuscle escaped from the interior of the tube could be distinctly followed, that part of the tube in contact with the external side of the corpuscle gradually disappeared, and at nearly the same time might be seen the formation of a distinct line of demarcation between the inner segment of the corpuscle and the fluid part of the blood in contact with it.

After admitting that to Waller must be granted priority of discovery, he says:—

> "But with a due estimate of the difficulty of a definite decision as to the perforation of the walls of vessels, I must maintain that neither Waller's illustrations nor his statements were such as to awaken confidence. I have only been able to diagnosticate a diapedesis, after I had been able, in the animal under the influence of woorara, to observe at leisure the clearly defined neck of such a corpuscle fast in the vessel-wall. So long as that has not been done it can always be objected that there may be two corpuscles, of which one adheres to the outside and the other to the inside of the wall. But such a neck Waller has neither described nor sketched. Neither can I find from his statement that he has really followed the entire act of perforation, although the passage quoted refers directly to it."

Waller therefore opposed the current doctrine of his day as to the origin of pus-cells in the blastema, but without avail, and his discovery attracted no attention. The labours of Goodsir and Redfern, however, soon effected what Waller could not, and Virchow's views have since been promulgated and arisen to the ascendant, until the year 1867, when Cohnheim again brought forward the doctrine of a derivation of the pus-cells directly from the blood, maintained this to be the characteristic feature of the inflammatory process, and by his advocacy won for it a general acceptance.

The history of experimental study of the injuries of the cornea is then sketched. To Bowman especially is given the credit of first laying stress upon the "disturbances of nutrition" following lesions of this membrane, the changes in the bloodvessels having alone been observed before. The doctrine of the origin of pus-corpuscles from the corneal cells was not changed even by Recklinghausen, who added, however, the discovery of the contractility and locomotor power of the pus-corpuscles. Soon after Cohnheim published his observations of the study of the inflammatory process in this membrane, together with his use of the chloride of gold as a means of rendering the elementary tissue forms visible. His statement, that the corneal cells do not participate in the formation of pus, but that the pus-corpuscle is here, as elsewhere, derived directly from the blood, unsettled everything. Hoffman, a pupil of Recklinghausen, has entered the lists in favour of the former views, and has been replied to by Cohnheim, who denies most positively all participation of the corneal cell in the formation of pus, and thus matters stand at present.

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[1] See this Journal for January, p. 139.

[2] The reference is to the "Philosophical Magazine," vol. xxix. pp. 271, 398.

In addition to, and entirely independent of, any questions as to the origin of pus, consideration must be taken of those processes which are a part of inflammation—the saturation of the parts with fluid exudation, and the disturbances of nutrition of the tissues.

Frankly stating that he has not gone deeply into the history of these points, the author refers to Bennett and Rokitansky as the chief advocates of the importance of the exudation. He quotes both ; the former says : "It is only when the exudation has taken place that we can state positively our conviction of the presence of inflammation ;" the latter, "with the exudation the inflammatory process must be looked upon as complete."

But the cell formations of such exudations were gradually thrown into the background, and the whole doctrine of exudation suffered the same fate, in bringing about which the discovery of the characteristic processes of inflammation in non-vascular tissues contributed not a little. Although the value of the process of exudation has never been entirely forgotten, we have gradually accustomed ourselves not to take the co-operation of the vessels into consideration when treating of inflammation.

> "By the labours of Cohnheim, however, attention is again directed to the circulation, and indeed to such an extent that the disturbances of nutrition are once more placed in the background. In the place of fluid exudations, formed and living elements are introduced, but it is again a material originating from the blood, whose appearance is designated as the essential characteristic of the commencing inflammation."

One other point remains—the importance of the connective tissue[1] in the inflammatory process. This tissue, according to Virchow, is the source of all the new formations of inflammation. "From the stand-point of the theorists of inflammation the organism is only a structure of connective tissue into which nerves, muscles, and glands, entirely unessential to the new formations, are shoved." From time to time, however, advances have been made, showing this doctrine to be untenable. First came the discovery of Remak and Buhl that the epithelium is also in part a source of the neoplasm, and the probability that the gland cells participated was established. It is stated that Virchow himself, by his discovery that in inflammation the nuclei of the muscles increase in number, rendered important aid. Finally the author and Leidesdorf proved that the walls of capillary vessels grow and take part in the process, leaving but a single class of cells, the nerve cells, of which no account has been taken in inflammation.

> "The recognition of the participation of gland cells, muscle nucleoli, and capillary vessels in the process of inflammatory formations has, in the meantime, scarcely diminished the great importance of the connective tissue. It is only a participation of these tissues which is vindicated in a process principally carried out by the corpuscles of the latter. Cohnheim alone speaks against this, and we can see, in his theory, a counterpart to the former doctrine of Virchow. Virchow attributed all to the corpuscles of the connective tissue ; Cohnheim to the colourless corpuscles of the blood."

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[1] "Every tissue is called connective tissue whose basis substance yields gelatine when boiled."—*Cellular Pathology*, translation by Chance, p. 47.

In view of all these differences of opinion, and of the amount of this profoundly intricate subject which is not yet known, the necessity for such "studies" as are here presented is apparent, and we assent to the necessity for that sober and temperate judgment upon these matters which, the author says, is beginning to prevail, as well as recognize how true it is that these "processes do not permit themselves to be constructed by the imagination." How some of them take place in reality is attempted to be shown in the various papers of the volume, and we do not know that we can do better for the benefit of our readers than to take some one of these papers and make a pretty thorough analysis of it as the best means both of giving an idea of the manner in which the investigations are carried on, and of furnishing a specimen of the results attained.

We select for this purpose the second paper, on cell-division in inflamed tissues, by Dr. Stricker. He remarks that the usual mode of investigating inflamed tissues under the microscope, by removing them entirely from the organism, is not likely to furnish proof of the vital changes taking place in cells, and he therefore rejects this mode entirely. Cohnheim's plan of studying the process in the parts yet in connection with the living being is far preferable, yet this author has limited his observations to certain occurrences in the finer vessels and in the colourless blood-corpuscles, and to the dogma that these occurrences comprise the essence of inflammation, Dr. Stricker has never given in his adhesion.

He chose for study the tongue of the frog rather than the mesentery, as a good field for observation of the corpuscles of the connective tissue, and chiefly, it would seem, because Cohnheim had failed to observe here any changes of form in these bodies. He learned from this to prepare himself for watching. We now give his own description of events :—

"Scarcely had I entered upon this study before my attention was fixed by peculiar occurrences in the nomadic cells. I directed my observations at first in the neighbourhood of small veins, in order to be able to follow at the same time the emigration of colourless blood-corpuscles, and then soon observed that single corpuscles after their emigration, and others, whose origin I had not observed, appeared to lie quite close to the vessels. Upon closer observation I perceived that on their surface dark lines, sometimes more, sometimes less clearly defined, made their appearance, then vanished and appeared again. Sometimes a corpuscle was bridged over by one line, sometimes by two, crossing at different angles. At the crossing point appeared a deep shadow representing a cavity. The lines shifted towards one or the other pole, and changed in direction and intensity."

Remembering what he had learned from the study of furrowing in the ova of the trout, and of the batrachiæ, he was convinced that he had here to do with the beginning of the process of cell division.

"Thus these two points, that an amœboid germ gathers itself into a cluster before the furrowing, and that segmentation is preceded by peculiar movements, gave me the hint that the colourless corpuscles gathered into clusters and lying near the vessels were preparing for the act of division, and that the appearance and disappearance of the dark lines gave expression to this preparation.

"In fact I soon succeeded in seeing so deep a grooving of one cell that it appeared to be divided into two clusters. The shadow line became a clear and distinct mark while also smaller groovings took place on the lateral circumference. It had the appearance now of two separated clusters lying near each other. Closer observation convinced me, however, that the clear mark was only a non-granular zone of the cell—a zone which certainly showed a small indentation or groove. The mark became broader, it appeared as if it separated the granular clusters from each other, and then it became smaller again, and finally disappeared entirely; the clusters united once more, and there was no sign of the presence of a cell caught in the act of division, for it began again its amœboid movements and disappeared from the field.

"In another instance the mark remained, and also one of the apparently separated clusters tolerably unchanged, while the other began to move itself, gradually changed its location and dragged its motionless fellow after it; but the latter did not long remain passive, the whole mass flowed together again into one, and there was only an ordinary amœboid cell before me. Yet this condition did not remain long, the occurrences already described took place anew, shadow lines formed again, and after these had changed several times in intensity and direction, the clear mark appeared, which once more seemed to divide two large clusters in close proximity. But now the mark disappeared no more. For a time the clusters lay quiet, approached and moved from each other in a scarcely perceptible manner, until all at once one of them stretched out an arm, drew its body along after the projection, and the separation was completed. Soon the other cluster began to move, and the parted pair wandered in different directions over the field."

This process can be seen repeated with great frequency in the inflamed tongue of the frog and under favourable conditions. The time occupied by the process is, however, subject to great variation.

"Sometimes I watched one field for half an hour and more without seeing a single division, sometimes I have caught one within a minute or two. It is a matter of course that only a limited number of form-elements can be simultaneously controlled. It is well known that only one can be fixed upon at once, but since the probability of success increases with the number under observation, I selected generally three or four corpuscles which I inspected by turns, and delayed that one whose furrow was most advanced, and in which the probability of an actual division appeared the greatest. So long as it was a question of attaining a decided conviction, the single chosen corpuscle was not allowed to pass out of sight. The reader will comprehend this precaution when I say that so long as only single elements are in the field, the division is a seldom occurrence, and that it goes on best where the pus-corpuscles are thickest; where, so to speak, the forest cannot be seen for trees.

"It may happen that the majority of the pus-corpuscles do not wander about, and that many of them, by the changing furrows, indicate their preparation for division, and that thus there is favourable opportunity for the attainment of our object. The field of vision, however, swarms with nomads, which increases the difficulty of observation. If the eye is not directed uninterruptedly upon a certain form element, while the halves shape themselves for separation, the identity of the nomads with the former cluster cannot be maintained.

"To the more practised observer the prolonged fixation, even under the unfavourable circumstances mentioned, will not be difficult, and I may indicate the division of the pus-corpuscle as a process which is now easily followed. As a precautionary measure the inflammation should be allowed to advance before beginning the study, until large knots of pus-cells are easily met with, points should be chosen where the circulation is in rapid play and the view limited to the parts surrounding vessels, or, better still, fixed upon collections of pus-cells in the vascular angles. Farther, the animal should be but moderately affected by woorara, so that it will become active again after six or eight hours, and the tongue should not be stretched more than necessary to pursue the examination. By stretching and by too large a dose of the poison the circulation is weakened, and thereby also the intensity of the process of division. Finally, I advise the use of lenses of considerable focal distance (objective 7 of Hartnack) for the investigation, pencilling of the wounded part of the tongue with a weak solution of chloride of sodium ($\frac{1}{2}$ per. cent.), and the immersion of the lens.

"In what precedes, I have shown in what manner, and under what conditions, division of the nomadic cells takes place. I have sometimes used this term [Wanderzellen], and sometimes again spoken of pus corpuscles [Eiterkörperchen], and it is a matter of course that in both cases I refer to equivalent bodies. I have, besides, pursued my observations in the neighbourhood of vessels thus in localities where, doubtless, there were many colourless blood-corpuscles. I have also observed the attempts at division in form elements whose emigration I had before directly observed. Whether all moving cells found in the neighbourhood of vessels are emigrants, or descendants of such, I will not now discuss.

"I conclude, firstly, with the one fact, *that in inflamed parts nomadic cells or pus corpuscles increase by division.*"

After consideration of some objections which may possibly be advanced against his observations or conclusions, he proceeds to the real object in view when he began this study—to follow the changes of the connective corpuscles of the intermuscular tissues of the tongue. From his experience, which we have already given, his confidence of success had not been increased. The difficulty of maintaining the circulation in lively flow through the parts, the fact that the division of cells goes on but very slowly in the neighbourhood of blood-stasis, and may even be sought for in vain, and the fact that the inflammation itself does not proceed with the usual rapidity in poisoned animals, rendered all precautions in the highest degree necessary. A portion of the tissue was selected for examination, and its vascular arrangement carefully sketched under low power, then under a higher power. Several of the bodies lying in the interspaces were also drawn, so that the same objects could be again brought into the field, and the study continued, in spite of interruptions or postponements. These corpuscles of the connective tissue are of two kinds, the one in shape like an irregular cluster, the other more extended or stretched out and exceedingly irregular. If he did not succeed in seeing the division of these bodies, he satisfactorily established the fact that they possess the power of motion.

"I have kept such bodies in view many hours in succession. I saw groovings appear and vanish. While the mother cell lay motionless, an appendage attached to it by a mere thread executed lively motions, flowed again into the former, and new furrowings took place without, however, proceeding to an actual separation."

"A more extended course of observations soon taught me that, also, the extended and peculiarly shaped bodies possess a manifold degree of movability. In one case I followed the observation ten hours in succession. In the course of this time the animal became restless, and a second dose of woorara had to be administered. I expected, in this case, a division. The corpuscle which I had kept in sight from the beginning showed itself more active than usual. Not only was the play of furrow-lines lively, but single parts also changed their form independently. First it was only one terminal projection which showed activity, then the two next, and now the appearance was peculiar. Although one part of the body exhibited no striking changes, yet it appeared as if the body, originally like an extended S, had rolled itself up like a skein. It was afterwards observed that it was only the three end members whose change of form and position occasioned this deception."

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"It was decided that even the apparently stationary corpuscles of connective tissue in the course of the inflammatory process attain a certain degree of movability, that changes make their appearance which indicate attempts at division, and that, finally, parts of them become quite as movable as even amœboid cells."

"Embryology teaches that the immovable cells proceed from amœboid, and the inflammatory process shows us that the reverse may take place. I say *may* take place, because single observations do not justify us in drawing general conclusions, and because it borders upon probability that cells which have once reached a certain age are no longer capable of moving in totality.

"Whether movable connective tissue corpuscles actually divide, and in a wider sense increase, is, by the preceding observations, again made probable, but not really proved."

By all these trials the conviction had been forced upon the author that only insufficiency of means had prevented the actual observation of the process of division of the so-called fixed connective tissue corpuscles. He had recourse again to the cornea as a more promising field for pursuit of his object, and we will interpolate here, from the first paper of the series, a paragraph or two upon the structure of this membrane, and his mode of studying its cell changes.

"When the cornea of a healthy frog is brought under the microscope in its own aqueous humour, and with the other well-known precautions, at a little distance from the cut edges no structure can be perceived, the cornea appears, where evenly spread out, entirely homogeneous, and the upper and lower borders of the preparation can only be distinguished by the foreign matter adhering to them. At the turning point of folds, the anterior or posterior epithelium, according to the position, can be seen separated from the proper corneal tissue, but the layers of the former appear only as homogeneous zones.

"Engelman has expressed this fact, by saying that he considers the preparation the more successful the less he can at first see. For us, in view of the succeeding communications, it is a sign of the normal condition." For—

"The homogeneous appearance of the cornea is destroyed by any interference. If a foreign body is thrust into its centre, or if it be cauterized with nitrate of silver, certain form-elements can be recognized immediately after the excision. When only fifteen minutes have elapsed between the application of the injury and the excision, the anterior epithelium and many inter- and sub-epithelial nomadic cells are perceptible, and when one or two hours intervene, a smaller or larger number, according to circumstances, of the peculiar corneal cells, make their appearance, and remain, so long as no other changes occur, as dark islands upon a clear ground."

As a means of maintaining cell changes under observation, and of enlivening them when they begin to grow languid, the following plan, original, we believe, with Dr. Stricker, is pursued:—

"After the cornea is excised and properly prepared for observation, we decapitate the frog, collect its blood, and allow it to coagulate. We then, from time to time, touch one edge of the covering glass with a little of the coagula. Along the opposite edge we lay a strip of filter paper, which, when saturated, is replaced by another. Thus blood is supplied to one side of the preparation and withdrawn from the other. Under this influence a transudation goes on which can be made continuous or interrupted at the will of the experimenter."

In this manner his observation of cell changes in the cornea was pursued:—

"The first sure observation of cell-division I made in one of the large movable plates lying on Descemet's membrane. The structure was so fine that I could not at first distinguish it unless by shading off the side light from my retina. I then soon observed that it changed its form; I began to draw the figure of it, and even before the sketch was done it had ceased to resemble the original, and so the change continued for twenty minutes; then a diagonal mark formed and upon each side of the mark a flat elliptical nucleus became distinctly visible. Gradually the body upon each side of the mark corded itself in and went so far that the two halves only hung together by a slender thread. Each half now changed form independently, the nuclei became again invisible, one half grew pale while the other remained visible. But yet the uniting cord was not divided; it grew thicker again and for a time it appeared as if the trace of division had disappeared. Then the mark came again and again vanished, until finally, after perhaps an hour under continual transudation, the bridge of union was reduced to a small arm, the thread broke, its ends were drawn in and one of the corded-off but yet smooth halves left the field under active changes of form."

* * * "In this case the peculiar nuclei leave scarcely a doubt that we had to do with a large double nucleated epithelial cell. The division took place besides with such clearness that I am compelled from this observation to draw the conclusion that the epithelial cells of Descemet's membrane, under favourable conditions divide and change into nomadic cells."

Farther instances are then related of the observation of the same changes.

One question yet remains to be answered: "Can the direct transition of corneal cells into nomadic cells be observed in such a way?" This question he is not prepared to fully answer; he relates at length several observations going to show its possibility, and concludes the paper as follows:—

"From an extended range of attempts I have gained the conviction that a direct observation of the transition of a branched corpuscle into an amœboid is dependent upon accident or upon a very prolonged observation.

"It has now, to repeat once more, been also shown in the cornea that out of one nomadic cell two independent wandering elements may be formed. It has been further shown that a bi-nucleated cell, having no resemblance to a colourless blood-corpuscle, which from situation and form must be claimed as an epithelial cell of Descemet's membrane, can likewise divide into two nomadic cells; and finally it has been shown that larger many-nucleated and more inactive elements of the inflamed cornea can become, entirely or partially, as to appearance and movement, like unto the nomadic cells.

"After what has been demonstrated in the first paper as to the genesis of these larger elements, that becomes yet more probable, which was then left scarcely doubtful, that nomadic cells proceed from the branched so-called fixed corneal cells."

There are several other papers of the work deserving notice, the one on traumatic encephalitis especially, yet the fact that only by little less than a complete translation could justice be done to them, forbids us entering upon their examination. We turn, therefore, to the conclusion, which is not so complete a *résumé* of the subject as we had hoped to find, undoubtedly because of the fragmentary character of the work, made up as it is of studies of special points, and we must wait therefore for that complete account of the process of inflammation which we are satisfied no one is better able to give than the editor.

First as to the exit of the colourless corpuscles from the bloodvessels, we learn that

"It is a proved fact that, in the beginning of the inflammatory process, troops of these corpuscles leave the vessels and spread themselves abroad in the tissues. The question then, whether pus corpuscles originate from the blood, needs no more to be propounded. It must, however, be asked, From what *other* sources does pus originate? To this there have been various answers returned in the foregoing papers.

"It has above all been shown that the pus corpuscles themselves divide, and it has been shown to be probable that in profuse suppurations the most important mode and origin of the pus is to be found in the process of division. It has further been shown that the epithelia, partly by division and partly by endogenous growth, gives birth to a young generation. It has been shown that the corpuscles of the connective tissue, during the course of the inflammatory process, take on properties, after which the ability to divide can no longer be denied to them—even that, in consequence of these properties, they already possess the character of pus corpuscles. It has, finally, been shown that the muscle corpuscles increase in number.

"We can thus lay down the following general proposition: *The pus corpuscles originate from various sources.*

"It has further been shown that, as a consequence of the inflammatory process, there may be an outgrowth of the capillary vessels, a transformation of the liver cells into fibres, and, finally, that under certain circumstances the nuclei of nerve-cells increase in number. All these processes indicate disturbances of nutrition, which must be explained as increased vital processes. For increase of substance, change of form, the appearance of new nuclei, are vital processes, and when they are formed where they were not present before, an aliquot part of the vital process must have been increased.

"We may also present the following proposition, which is of general application, because the occurrences have been observed in all types of cells: *The inflammatory process is accompanied by an increase of function of the cellular elements influenced by it.*"

While then we are driven towards Virchow's views as to the essential importance of the local disturbance of nutrition, it will not do to consider the term inflammation as defined by a statement of this part of the process. Neither will it do to consider it as merely an exit of colourless blood corpuscles from the vessels. A majority of the rising generation, we are told, do thus look upon it, and, to use an expressive German proverbial phrase, "throw the child out with the bath." A statement of both these processes will not cover the term inflammation.

"If we would hold fast to an independent clinical idea of acute inflammation, we must define it otherwise. Or rather we cannot define it, we must describe it according to the manner of Celsus. We must enumerate its characteristics in order to represent the clinical process, and among these a prominent position must be accorded to the 'disturbances of nutrition.'

"A not less important role must be accorded to the 'exudation.' . . . . The importance of the exudation stands again to-day, in the minds of physicians and experimenters, as high as at the time when it was so strenuously maintained by Bennet and Rokitansky. . . . It is an important, perhaps, with the nutritive disturbance the most important, characteristic of inflammation."

The following processes take place in inflammation experimentally produced, with the order of their occurrence:—

"Traumatic influence, disturbance of circulation, exudation of fluid and morphological constituents, disturbances of nutrition—new formation.

"Neither of these characteristics is alone decisive. An injury may be effected, disturbance of circulation may become perceptible to our eyes, without inflammation following, and without our being able, with our present means, to say that this disturbance of the circulation is really different from the inflammatory.

"That the exudation alone does not make inflammation is proved by œdema, and again we find ourselves without the means of recognizing the finer features which characterize the inflammatory exudation."

Small as this work may be in comparison with the importance and extent of the subject studied, and minute as the points settled may be, it belongs to a most valuable class of scientific publications, and by such workers as its authors is the hidden to be made plain and the unknown to become known. It is indicated as the first of a series, and we shall look with interest for those which are to follow. J. C. R.

Art. XVIII.—*Obstetric Operations, including the Treatment of Hemorrhage.* By Robert Barnes, M. D., F. R. C. P., etc. With Additions by Benjamin F. Dawson, M. D., etc. 8vo. pp. 483. New York: D. Appleton & Co., 1870.

Since the death of the lamented Sir James Simpson, there is no writer on obstetrics who commands a position higher than that of Dr. Robert Barnes. No one can read his articles without profit, nor without being struck by the originality of thought and the fertility of resource which crop out on every page. Hitherto he has made himself known by short trenchant essays, and this volume will, therefore, be the more welcome to his admirers, of whom he has no small number in this country. Having recently read this work with an increased admiration for the genius of its author, we propose to give a short analysis of its scheme and scope.

The author begins without circumlocution or preface, to consider the emergencies in labour which demand assistance or interference, and the instruments requisite for this purpose. If the position of the child be unpropitious, the hand, the lever, and the forceps are the instruments. If disproportion be the cause of trouble, then the instruments must vary according to the kind and the degree of the disproportion.

As our readers may be interested to know what are the tools of this master-workman, we will enumerate the contents of his "obstetric bag," in the order he gives.

"To save the child.	1. A lever.
	2. A pair of long double-curved forceps.
	3. Roberton's apparatus for returning the prolapsed funis.
To reduce bulk of child.	4. A craniotome or perforator.
	5. A crotchet.
	6. A craniotomy forceps and Simpson's cephalotribe.
	7. Ramsbotham's decapitating hook.
To induce or accelerate labour.	8. A blunt-ended straight bistoury, with a cutting edge of three-quarters of an inch to incise the os uteri, in cases of extreme contraction or cicatrization.
	9. A syringe with flexible uterine tube nine inches long.
	10. A set of my caoutchouc hydrostatic uterine dilators.
	11. Three elastic male bougies (Nos. 8 or 9).
	12. A porcupine-quill to rupture the membranes.
	13. A flexible male-catheter.
	14. A pair of scissors and thread.
For the Cæsarean section.	15. A bistoury.
	16. Sutures, silk and silver.
	17. Chloroform and inhaler.
	18. Laudanum.
	19. Hoffman's anodyne.
	20. Ergot of rye.
	21. Solution of perchloride of iron. An ounce of this diluted with six ounces of water is an efficient hæmostatic."

This "obstetric bag" certainly has the merit of completeness, but we fear our country brethren, who ride much across country, would demur at its weight. To this list are subjoined by the American editor, the obstetric cases of Professors Elliot, Thomas, and Budd, all of which seem to us to contain too many instruments. The numerous friends of Prof. Elliot will be pleased to learn from a foot-note, that he "is having constructed a cephalotribe of an entirely new model, and is perfecting his *Perineal Protector.* He is also engaged in testing the value of Joulin's Aid Forceps." This would be quite an entertaining bit of gossip from "our own correspondent," but is hardly relevant to the dignity of the text.

The vectis is next discussed. Dr. B. claims that it is essentially a lever in its action, notwithstanding its sharp curve, and contends that "it does not directly draw down the head, but, by pressing upon one side or point of the head-globe, it causes the globe to revolve upon its centre, its axis representing another lever." A number of graphic wood-cuts illustrate this point of view, but we think they only show that the axis of the child's head represents a lever, whilst the vectis becomes the power applied to one extremity of it. Dease,[1] J. Hall Davis,[2] and Copeman,[3] assert that this instrument, miscalled *lever* or *vectis*, is a true tractor, and should only be used as such. Up to a certain point it appears to us that both these opinions are correct, and that its action is a compound one. For when in use a certain amount of lateral pressure against the child's head is unavoidable, in order to prevent slipping, and this pressure converts it into a lever of the "third kind," even when pure traction is aimed at. Dr. Barnes uses Symond's lever, which is provided with an honest wooden handle, and with a joint in the shank, enabling it to be folded up. We deem ourselves fortunate in possessing this instrument, and can recommend it highly in mento-and occipito-posterior positions, and in cases of imperfect flexion or extension. In this country the vectis has fallen into undeserved disuse, but this we partly attribute to the inefficiency of the American pattern, which is too short and too moderately curved, whilst the ambitious fenestra in the handle renders the hold very unsteady and painful.

It is gratifying to find that in Dr. B.'s "obstetric bag" the straight forceps finds no place; indeed, from a late discussion with Dr. Beatty in the *Medical Times and Gazette* for 1868, it is evident that he is not very partial to this instrument; and yet he has so far yielded to the prejudices of his countrymen as to devote the whole of Chap. IV. to a consideration of its application. It is a matter of surprise that the teachings of Denman, Osborne, and Blundell, elsewhere obsolete, should still influence the present generation of British practitioners; and that, since the days of Smellie, Pugh, Giffard, and Perfect, the use of the forceps has positively retrograded. To England is due the merit of the discovery of this noble instrument, and yet in that country are its benefits least appreciated. The only reasons we can assign for this anomaly are the delay in the application of the forceps, until the head is either low down or well jammed into the pelvis; and the custom of keeping the woman on her side, a position which interferes much with the accurate adjustment of the double-curved forceps to the sides of the child's head. As Dr. B. remarks, "one merit the short forceps has, not without importance to the novice; it is easier to use than the long forceps." Were the forceps applied earlier, and the dorsal decubitus adopted, we believe the short, straight forceps would become as great a curiosity in England as it is in this country.

In Chap. V. he considers the application of the long, or double-curved forceps, but, strange to say, neglects to inform the reader when and under what circumstances to resort to its use. This omission appears to us the more important, since Dr. B. represents the progressive school, and all the hitherto standard British authors, with perhaps the exception of W. Tyler Smith, are unsound upon this very point. Before reviewing this chapter, it will be necessary to turn back a few pages, and see what Dr. B. considers a good forceps. "The best are Simpson's and Roberton's. The essential conditions to be contended for are that the blades have a *moderate* pelvic-curve; a head curve, also *moderate*: an extreme divergence between the fenestræ of *three* inches." (p. 19.) Again, he observes at page 32, "In the English patterns the points are generally distant from each other *an inch or more*;" whilst the narrow blades and the kite-like shape of the fenestræ—we all know—are religiously handed down from father to son. With these facts before us, we were not surprised at the admission on page 63, that, in estimating the descent of the head by that of the shanks, "allowance must be made for some slipping, which takes place with all the English instruments, whose blades have only a moderate curve." But it will be news to the reader, that this slipping is an advantage, and one of the main elements in securing a good grip. At page 31, we quote the following: "In order to draw, the instrument must take hold. How does it take hold? You may at sight suppose that this is accomplished by grasping the handles. But in the case of the ordinary forceps, especially the short-handled forceps, there is little or no compressive power, so that the hold cannot be due to the handles. The hold is really due to the curvature of the blades, which fit more or less accurately upon the globular head, and the *compression of the bows of the blades against the soft parts of the mother, supported by the bony ring of the pelvis*." Although we do not deny that, in the simplest cases, this extraneous compression may be enough to deliver the head, yet this cannot occur without some degree of slipping, and no forceps can be considered good, which depends for its grip upon such help. When there is room enough to apply the forceps—and Dr. B. applies them always in the ilia, where there is most room and least nipping—surely the soft parts of the mother can exert no great pressure upon their bows, unless they are so weak, or faulty in construction, as to slip; when, of course, the separation of the blades, thereby induced, would continue until arrested by their coming into firm contact with the pelvic tissues. If Dr. B.'s theory be a correct one, a forceps without fenestræ should have the firmest grip; but after continued traction, what physician, who aims to have the parietal protuberances and other salient points on the child's head protrude through the fenestræ, has not observed the blades so buried in the soft tissues of the child, which bulge up around and through the fenestræ, that even the soft parts of the mother could barely impinge upon them. The firm grip of the Hodge or Davis forceps, so much used in this country, certainly does not depend upon any such outside help.

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[1] Observations in Midwifery, 1783.

[2] Parturition and its Difficulties, pp. 74 and 339.

[3] Records of Obstetrical Consultation Practice, p. 59.

In the application of the long forceps Dr. B. gives the following rule:—

> "The position of the head may be practically disregarded. The pelvic curve of the blades indicates that these must be adapted to the curve of the sacrum in order to reach the brim. They must, therefore, be passed as nearly as may be in the transverse diameter of the pelvis. One blade will be in each ilium, and the head, whatever its position in relation to the pelvic diameter, will be grasped between them. The universal force of this rule much simplifies and facilitates the use of the instrument. Not only does it apply to the position of the head in relation to the pelvic diameters, but also to all stages of progress

of the head, from that where it lies above the brim, down to its arrest at the outlet."

With diffidence we venture to question the soundness of this advice. Surely the aim of the physician should be to apply the blades over the sides of the child's head, whatever its position may be, for then they act to better advantage and do the least harm, both to mother and to infant. As Dr. B. himself remarks at page 242, in an argument supporting version in contracted pelves, "Compression of the head in its transverse diameter is much less injurious to the child than compression in its long diameter. The truth of this is attested or admitted by most authors who have considered this point." In neglected cases, or in those of dead children, where the head and shoulders are jammed down into the pelvis, it may not always be possible to rotate the blades into this position, but it should always be attempted, and will generally prove successful.

Dr. B. recommends the lateral position of the woman during the application of the forceps, and their traction. For convenience, as requiring no assistant, and for the reason that the patient is not so liable to become alarmed, we often apply the forceps in this position, but always experience far more difficulty in rotating the blades to the sides of the child's head; perhaps for this very reason Dr. B. applies them in the transverse diameter of the pelvis. In cases, however, of difficult application, or requiring powerful traction, the supine position is preferable, not only because the blades are more accurately adjusted, and the patient more under control; but because, by pushing the shank backwards and downwards, with the left hand upon the lock, a compound power is obtained, which forces the head away from the neck of the bladder or urethra, and compels it to hug the sacrum in its descent. Again, in occipito-posterior positions, by raising the handles with the right hand, and depressing the lock with the left, we can at once meet three important indications, viz., to lift the occiput off from the sacrum, to force flexion, and to make traction.

We are glad to see, on page 44, that the American editor inclines to the "pure tractive force of the forceps," in preference to the leverage movement of the handles, as recommended by Dr. B. This pendulum motion certainly adds to the ease of extraction, but is rarely necessary, and is liable to be abused by beginners, who thus bruise the maternal soft parts. Cases are on record in which the pelvic bones were separated and even fractured by exaggerated movements of this kind. Furthermore, did we believe with Dr. B., that the grip of the forceps is chiefly maintained by the pressure of the "soft parts of the mother supported by the bony ring of the pelvis," we should hardly dare to make any other than direct traction.

One paragraph on page 276 deserves quotation for its truthfulness, and also for showing how much in advance of his countrymen is the author. "Statistics, professing to show that the mortality from the use of the forceps is at the rate of one in twenty, are flagrant examples of the fallacy of arguing '*post hoc, ergo propter hoc.*' Properly speaking, the mortality from the forceps is *nil*. Women die because the instrument is used too late." We can truly say that we have never seen a death which could, by any possibility, be attributed to the use of the forceps; whereas, we are cognizant of several fatal cases which could be referred either to their non-employment or to the delay of their application. Our author, by the way, in common with the late Dr. Mütter, has a horror of "statistics." At page 246 he says: "I will not stop now to press the preliminary objection I entertain to submit the decision of this (viz., version in contracted pelvis) or any other question in obstetric practice to *a priori* arguments drawn from statistics." To him they are "a confused heap of incongruous facts" and "stultified by endless fallacies." Thanks for this boldness of utterance!

Chapter VII. discusses the subject of Occipito-posterior positions, but in a manner to which American physicians will certainly take exception. After recommending the use of the vectis in bringing down and rotating the occiput "under favourable circumstances," he adds:—

> "But I cannot give more than a qualified assent to the propriety of attempting to rectify the position. It is only exceptionally useful; still more rarely is it necessary; and it is not free from danger. The head can be born very well preserving the occipito-posterior position throughout. Indeed, I think this occurs more frequently than Naegele represents. Nor does the case call for any amount of force. By aid of the forceps the delivery is nearly as easy as when this instrument is applied to an occipito-anterior position. In a large proportion of cases nature will not insist upon bringing the occiput forward; and here, again, your part is simply that of a minister of nature. The forehead will emerge under the pubes; the cranium will sweep the sacrum and perineum."

Prof. Hodge[1] states that in a practice of over forty years he has never failed to rotate the head anteriorly; and we have only once been foiled. Our own experience, with the forceps, in these positions, teaches us that, even after the occiput has rolled into the hollow of the sacrum, as it sometimes does, it will rotate anteriorly in the vast majority of cases, either spontaneously or by gentle coaxing; but that this rotation must not be looked for, nor attempted, until the head begins to press upon the floor of the pelvis, or even upon the perineum proper. We have repeatedly been obliged to hasten the removal of the blades, lest their pelvic curve should become reversed by the rapid rotation of the head, and have so been caught before they could be withdrawn. Nor is the delivery nearly as easy as in original occipito-anterior positions. Some of the most difficult forceps cases we have ever encountered, have been occipito-posterior positions in primiparæ. There is certainly additional and often serious delay in delivery with the forehead under the pubis; whilst the integrity of the perineum is always hazarded. For reasons previously given, it is especially important in these positions to have a forceps that will not slip, and to apply them to the sides of the child's head. Without wishing to be hypercritical, we are surprised that Dr. B. does not allude to the necessity of anæsthesia in these cases, for the patient is often rendered uncontrollable by the intolerable pain experienced in the sacral nerves during the descent of the hard occiput over them; and further, in delivery after the author's method, by the enormous distension of the acutely-sensitive structures of the vulva.

In this same chapter the author very ably, but rather too briefly, considers the subject of face presentations. In cases of mento-posterior positions, which cannot be rotated by the vectis, he advocates a plan first suggested, we believe, by Prof. Taylor, of New York, to make bilateral incisions of the perineum in order to facilitate the release of the chin. It is, however, doubtful whether in the majority of these cases, the head can be dragged down so low as to render this expedient available.

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[1] American Journal of Medical Sciences, n. s. vol. lii. p. 451.

Chapter VIII. opens up the moot subject of the forceps in pelvic disproportion. He believes "the range of the forceps is not great, the head cannot be compressed by it quickly;" he limits their usefulness to a conjugate diameter not under three and one-half inches, and then advises "tentative experimental efforts with the forceps before *turning*, which is perhaps *more hazardous* to the child." Why does Dr. B. prefer version, a confessedly more dangerous operation, to the use of the forceps? Is it because he does not apply the forceps early enough; and then "grasps the head in the longitudinal diameter?" Is it because there is "an extreme divergence of three inches" between the blades of his forceps, and, therefore, the requisite degree of compression cannot be exerted? Or is it because "compression of the bows of the blades against the soft parts of the mother, supported by the bony ring of the pelvis," cannot take place to aid the grip of his forceps when applied at the brim. Few physicians in this country resort to version in a contracted brim because they know that when the vertex presents, moulding with the forceps may go on safely for a long time—even for one or two hours; but if the base come first the moulding must be effected within *five minutes* to save the child. As the head is usually transverse, the practice here is to place the forceps obliquely on the child's head, so as to diminish the bi-parietal diameter, and also so as to obviate any dangerous compression upon the medulla oblongata. One blade is therefore pushed backwards until its convex edge shall touch the promontory of the sacrum, whilst the other is rotated anteriorly until its concave edge shall approach the symphysis of the pubis. There is still another method taught by some of our best teachers, which we have found of great advantage, viz., to apply the blades to the sides of the child's head, and this can very generally be done if attempted early, and before the head becomes nipped between the promontory and pubis. Nor will the bladder or rectum sustain any injury, for the blades bury themselves in the scalp and flesh of the child, and actually lessen the danger of such positions by diminishing the bi-parietal diameter. In the transverse position with the occiput to the left ilium, the forceps may thus be applied at the brim by the following manœuvre: The right (female) blade is first introduced in the right side of the pelvis—the woman lying on her back—and by rapid depression and spiral twist of the handle, together with upward pressure on its convex edge, is rotated nearly half a circle over the forehead to the side of the child's head under the pubis. The left blade (male), held loosely in the right hand, with its handle hanging downwards, is now introduced in the right side also of the pelvis, under the shank of the other blade. Now by raising the handle, and gently pushing up this blade, it will slide up over the sacral side of the head. As flexion is always very imperfect in transverse positions, it is well to bring down the occiput by the hand, or vectis, before the handles are locked, and even then they forcibly press upon the left or right tuberosity of the ischium, as the case may be.

It has been objected that, in the normal pelvis, the axis of the superior strait strikes a point a little above the extremity of the coccyx; that the long forceps, applied in the conjugate diameter, virtually becomes a straight one, so far as its relations to the pelvis are concerned; and that, therefore, it cannot be applied to the sides of the child's head in transverse cranial positions at the brim. To this we reply that Dr. Kidd's cephalotribe, so much vaunted in England, has straight handles and blades; that Dr.

Beatty[1] and other advocates of the straight forceps apply them at the brim, and that Dr. Barnes himself (page 185) states a case in which he applied the straight forceps to a head, which "could not bear upon the cervix to dilate it, because of slight conjugate contraction." Again, in cases requiring the application of the forceps at the brim, the conjugate diameter is diminished usually, either by a sliding forward of the fourth or fifth lumbar vertebra (spondylisthesis); or by a projecting promontory, involving a scooped-out and shortened sacrum. In both cases the axis of the superior strait will strike a point in the perineum anterior to the coccyx.

In this connection it may be remarked that (page 22) Dr. B. assigns to "pelvic unfitness" the impossibility of locking the forceps handles, "which is prevented by the projecting promontory, or other deformity, so distorting the pelvic diameters that the two blades cannot find room to lie in the same diameter opposite each other," and advises, when this happens, to give up the forceps, and resort to version or craniotomy. Now, as he resorts to version, and never to the forceps, when the conjugate diameter is less than three and one-half inches, it follows that in these cases of so-called "pelvic unfitness," this diameter must either equal or exceed this length; for Dr. B. is too clever a practitioner to make mistakes about the dimensions of the pelvis, and to be caught attempting to apply the forceps in diameters less than the above. Why should a conjugate diameter of three and a half, or even three inches, interfere with the application of a good instrument? There certainly will be room for the thin blades. To us it seems far easier to apply the forceps, where the conjugate diameter measures three inches, than to apply the cephalotribe in a pelvis measuring only one and a half inches, as Dr. B. successfully did (page 268); for there is relatively less room in the one than in the other case. Is it not more reasonable to attribute this difficulty in locking to the narrow and kite-like form of the English fenestræ which do not admit the inequalities of the child's head? hence the convex edge of the one blade, and the concave edge of the other tilt up, by riding upon opposite parietal or other protuberances.

Before quitting this subject we wish to call attention to a possible danger in forceps cases in contracted pelvis. After the head has passed the brim—which it usually does with a jerk—there is generally no further obstacle to its descent; yet sometimes the shoulders become arrested, and if this fact be forgotten, and the previous degree of traction be continued, the child's neck may be broken.

Chapter IX. treats of dystocia, from faulty conditions of the soft parts, in which the author relies on patience, opium, irrigation, his dilating bags, and multiple incisions in the circumference of the os. We are glad to see he puts no faith in belladonna, and objects to tartar emetic, on account of its adding to the distress of the patient. In these complications his dilating bags deservedly take rank; but he barely alludes to the fact that even when skilfully applied, they are liable to the serious objection of converting a normal into an abnormal presentation; although his recent discussion with Prof. Playfair upon this very point must have been fresh in his memory. In rigid perineum he advises lateral incisions; we think the cautious use of the forceps still better; for often, thus, the head will be delivered without the anticipated laceration; whilst if any should occur,

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[1] Medical Times and Gazette, 1868.

Killian[1] and I. Baker Brown have shown us that the immediate introduction of metallic sutures will cause it to heal up as readily as an incision.

The ten following chapters, illustrated by wood-cuts of a high order, are devoted to every kind of "turning." This operation he defines "as including all those proceedings by which the position of the child is changed, in order to produce one more favourable to delivery." We challenge any one to read these and the following chapters without doing homage to the genius of their author. - They form a mine of wealth out of which we can give only a few nuggets. He clearly shows that spontaneous version can only take place while the child is alive, or so recently dead that the elasticity of the spine is preserved, whilst the condition of spontaneous evolution is the death of the child, which permits the mashing and doubling up of the body. Bipolar and cephalic versions are next treated of in a masterly manner. While engaged on this review we successfully put into practice his method in descent of the hand by the side of the head. "While the parts are still movable push up the presenting hand by means of your left fingers in the vagina, and at the same time by pressing down the head by the external hand towards the brim, you make the head fill the space until the double-curved forceps is applied." In arrested breech presentations he prefers to "decompose the wedge" by bringing down a foot, rather than by resorting to the blunt-hook or fillet. His observations on extraction of the arms and head after version, and after breech-first labours are admirable, but are too long to be quoted, and require the accompanying illustrations. In version after the escape of the waters, he recommends the *farthest* knee to be seized, for "you want the shoulder to run up while you draw down the leg," and "by drawing upon the opposite knee to the presenting shoulder the movements run parallel in opposite directions, like the two ends of a rope round a pulley." In incomplete version when the shoulder does not rise out of the pelvis, he "pushes the shoulder and adjacent part of the chest well forward and upward." All these manœuvres are illustrated by excellent figures drawn by his own hand. He barely alludes to the postural method of version, and omits another often found successful when the uterus has become rigidly moulded on all the fœtal prominences, viz., to bring down the other arm and by pulling on it, to compel the body to roll on its axis, and thus carry up the presenting shoulder; the hand is now passed up between the arms over the child's breast and a foot seized while the uterus is as it were thrown off guard.

Chapter XXII. takes note of craniotomy, which he limits to pelvic contraction ranging from 3.25″ as a maximum, to 1.5″ as a minimum. As usual in all Dr. B.'s operations, the woman preserves the lateral decubitus. In difficult delivery after perforation, he recommends version, as the bones will collapse better, and during extraction the scalp will be drawn over their jagged edges. In this chapter the author gives a "new method of embryotomy" which he thinks will do away with the Cæsarean section. After perforating, a loop of strong steel wire is passed over the occiput, and made to cut through it by an écraseur. This divided occipital segment is now to be removed and the loop to be passed over the chin and jaw, and the process to be repeated.

Chapter XXIII. exhausts the subject of the Cæsarean section.

Chapter XXIV. takes up the subject of induction of premature labour, and deserves the careful perusal of every physician, especially as our own text-books barely touch upon this important subject. To bring on labour, the author passes up an elastic bougie six or seven inches into the uterus, and coils up the remainder of the instrument into the vagina to keep it *in situ*. Next morning some uterine action will have set in. In the afternoon rupture the membranes and insert a dilator. The American editor has made this chapter exhaustive by appending a long extract from a valuable paper by Prof. T. G. Thomas, which first appeared in the *New York Medical Journal*, February, 1870.

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[1] Die Operat. Geburtshulfe, vol. i. p. 168.

The four following chapters treat of every variety of uterine hemorrhage, and of their causes. As the profession has long been familiar with the peculiar views of Dr. B. upon this subject, we shall note only the salient points. In the hemorrhage of abortion, he tries to remove the ovum with his fingers, and, if unsuccessful, breaks it up. To stop the hemorrhage he plugs up the os uteri, and *not the vagina*, by strips of linen or by laminaria tents. After the cervix has become dilated by these means, the uterus is emptied of its contents, and any subsequent hemorrhage treated by swabbing the cavity with a solution of perchloride of iron. His views about the nature of placenta prævia are so well known, we will simply give the treatment. If the hemorrhage be alarming, whether the patient be in labour or not, he punctures the membranes, applies a firm binder, and plugs up the os uteri with laminaria tents. If the hemorrhage continue after their withdrawal, and the os do not expand—for the adherent placenta acts as a mechanical impediment—he separates all the placenta within reach of the finger. Should the uterus remain inert, dilate the cervix still more with the water-bags, and deliver by version. With an experience of sixty-nine cases of this kind of hemorrhage, the writer is entitled to speak authoritatively, and we are glad to find that, contrary to the accepted opinion, he lays down as a rule that the os is dense and dilates with difficulty. The most rigid and unyielding cervix we ever felt was in a case of placenta prævia. To this paper Dr. Dawson has judiciously added copious extracts from a valuable paper by Prof. Thomas, on premature delivery in placenta prævia, first published in the *American Journal of Obstetrics*, No. 1, 1868.

Accidental hemorrhage, both "frank" and "concealed," are next briefly treated. The author punctures the membrane, dilates the cervix with his water-bags, and delivers by forceps or by bipolar version. The American editor has here introduced a long extract from an essay on concealed accidental hemorrhage of the gravid womb, by Dr. W. Goodell, which appeared in the *American Journal of Obstetrics*, August, 1869. Post-partum hemorrhage is discussed at length in two successive chapters. We advise our readers to peruse them carefully; although the only strictly original plan of treatment is the use of uterine injections of the perchloride of iron, in the proportion of four ounces of the strong officinal solution to twelve of water. There is one rule laid down in the diagnosis of adherent placenta which we deem too exclusive. The author says: "If you can feel the insertion of the cord without passing your hand into the uterus, you know that the placenta is cast." That this is not always the case, when the lower margin of the placenta is adherent, we have verified on several occasions.

The various methods and instruments of transfusion are next given, with which our readers are all familiar. We know of no instrument superior to that devised by Dr. J. G. Allen, of Philadelphia. Blood, defibrinated by whipping, and kept warm by a water-bath, is slowly injected by means of a syringe, terminating in a nozzle so fine, that it is inserted directly into a vein, without any preliminary incision or painful dissection. By this method several cases of successful transfusion are reported in this city, not only in hemorrhage, but also in dangerous spanæmia.

Chapter XXIX. is an appendix which brings this work to a close. It treats briefly of twin labours, dorsal displacement of the arm, and the delivery of monsters. We will only quote the following rule for all cases of twin-labour: "As soon as the first child is born, apply a binder firmly on the abdomen to support the uterus, to aid it in recovering energy to complete the delivery, and to lessen the risk of hemorrhage"—which is always greater after such labours. The doctor, by the way, is so firm a believer in the advantages accruing from "the binder," that we fear he will lose caste among our enterprising brethren in Montgomery County.

In this critical analysis of Dr. Barnes' book, we have had the hardihood to differ with its gifted author on many points; and yet, after all, "there are," says the proverb, "many ways of getting to Rome," and his may prove the best. Viewed in the light of lectures, in which form most of them first appeared in the *London Medical Times and Gazette* of 1868–69, the style lacks the polished flow of the lamented William Brinton, and the colloquial informality of Sir Henry Thompson. But the originality of thought, and compactness of language, the freshness and raciness of the wood-cuts, will ever render this work an attractive one for reference; indeed, in our opinion, a more valuable contribution to the art of obstetrics has not issued from the press. The American publishers have spared no pains in the typography and general appearance of the work, whilst Dr. Dawson has, with judgment, refrained as much as possible from intercalating the text; and, if the author does not thank him for the few brackets he has ventured to introduce, we are pretty sure the reader will.

W. G.

ART. XIX.—*Surgical Memoirs of the War of the Rebellion, collected and published by the United States Sanitary Commission.* I. *On the Wounds of Bloodvessels, Traumatic Hemorrhage, Traumatic Aneurism, and Traumatic Gangrene.* II. *On the Secondary Traumatic Lesions of Bone: namely, Osteo-myelitis, Periostitis, Ostitis, Osteoporosis, Caries, and Necrosis.* III. *On Pyæmia.* By JOHN A. LIDELL, A.M., M.D., etc. etc., edited by Prof. FRANK HASTINGS HAMILTON. New York: Published for the United States Sanitary Commission, by Hurd & Houghton, 1870. 8vo. pp. xl., 586 (with wood-cuts and ten coloured plates).

THOUGH Professor Hamilton's name appears upon the title page of this volume as editor, all that he has contributed, so far as a careful perusal has revealed, consists of a short "Editor's preface," and a foot-note to page 163. The latter gives an interesting account of a case which Prof. Hamilton rather oddly calls a gunshot wound of the heart, though he expressly asserts that the ball did not touch the heart at the time of injury, but lodged near the right subclavian artery "near the inner edge of the anterior scalenus. From thence it made its way by absorption, gradually, into the right subclavian artery . . . . and from this point it slowly travelled, by pressure and absorption, into the internal jugular vein." The time occupied by the ball in reaching the heart is supposed to have been not less than five years. We fail to see why this should be called a gunshot wound of the heart, any more than the curious cases where balls entering different parts of the body have been passed by stool, should be classed together as gunshot wounds of the anus.

A statement in the *Editor's* preface that this volume embraces "all the more recent observations upon the topics discussed," is adapted to excite surprise, particularly as on the next page we find an honest confession from the *author* that his work has been revised merely down to the fall of 1867. Surely Prof. Hamilton does not wish us to believe that, because the Sanitary Commission has been inactive for the last three years, science has been equally torpid!

Leaving now the editor's part of the work, we are prepared to consider this handsome volume as the production of Dr. Lidell, who is well known to our readers, from various contributions to this Journal, as one of the most prolific as well as one of the most able writers who have illustrated the surgical history of the late "War of the Rebellion."

Dr. Lidell's first monograph or first section is "On the wounds of blood-vessels, traumatic hemorrhage, traumatic aneurism, and traumatic gangrene." It is divided into thirteen chapters, which are respectively devoted to—1. Traumatic hemorrhage. 2. General considerations touching primary hemorrhage from gunshot wounds, or battle-field hemorrhage. 3. The wounds of arteries, (1) punctured, (2) contused, (3) lacerated, (4) gunshot, and (5) incised. 4. Traumatic aneurism. 5. Wounds of the veins. 6. Arterio-venous aneurism. 7. Wounds of the heart. 8. The spontaneous arrest of hemorrhage from wounded arteries, and the means by which it is effected. 9. Intermediary hemorrhage. 10. Secondary hemorrhage. 11. The surgical treatment of traumatic and especially of secondary hemorrhage. 12. Parenchymatous hemorrhage; and 13. Consecutive gangrene, or mortification resulting from the injury of blood-vessels.

Upon all of these subjects our author's remarks are interesting and generally judicious. His views coincide on most points with those of the leading authorities of the present day, with whose works he is evidently familiar, and of which, as well as of the writings of the military surgeons of the early part of the century, he has ably availed himself in the construction of his own work. He has besides given a *clinical* aspect to his pages by the introduction of numerous cases, many of which are original, and all of which serve an excellent purpose in illustrating and enforcing the precepts laid down in the text. Perhaps the most interesting part of this section is that which treats of *Parenchymatous hemorrhage*, a subject which, as Dr. Lidell justly observes, has not received as much attention as it deserves, at least in the text-books of our own language, though he is mistaken in supposing that it did not attract the attention of the older military surgeons, for it is distinctly if briefly described by Dr. John Thomson, in his "Report of observations made in the British Military Hospitals in Belgium, etc." (Edinburgh, 1816), who says that it usually occurs from the 20th to the 35th day, and who believes it to have been referred to in a passage which he quotes from Le Dran. The credit, however, of pointing out the connection between the occurrence of this form of hemorrhage and of thrombosis in pyæmic cases, is probably due, as remarked by our author, to the distinguished surgeon-in-chief of the Schleswig-Holstein Army, Dr. Louis Stromeyer, whose observations on this subject were published in 1850. By the term *parenchymatous hemorrhage*, which is borrowed from Stromeyer, is meant that troublesome form of capillary oozing which the French call bleeding "*en nappe.*" When occurring as a form of *primary* or of *intermediary* (consecutive) hemorrhage, it is due to the dilatation of the capillary vessels which results from the inflammatory process, and which prevents them from contracting when divided, or allows them to yield when the force of the circulation is increased in reaction from the shock of an operation, the blood being at the same time forced by the artificial occlusion of the principal arteries into the smaller vessels which maintain the collateral circulation. When it occurs as a form of *secondary* hemorrhage, this parenchymatous bleeding is probably chiefly due to venous obstruction from thrombosis; it is under these circumstances frequently met with as a concomitant of pyæmia. We believe, however, that in these cases there is an additional cause of hemorrhage in a positive loss of coagulability on the part of the blood itself; a condition which obtains in pyæmia, as well as in many other forms of blood poisoning.[1] The treatment recommended by Dr. Lidell for *primary* and *intermediary parenchymatous hemorrhage* consists in the application of lint saturated with the persulphate or perchloride of iron; or, if these styptics cannot be obtained, the use of a sponge dipped in water of a temperature not less than 160° Fahr., or of the actual cautery. In cases of *secondary parenchymatous bleeding* from thrombosis, styptics and pressure may be tried; and if these fail, amputation at a higher point or ligation of the main artery. Even if the hemorrhage be checked by these methods, death will usually still occur as a result of the pyæmic condition.

While we entirely agree with most of our author's precepts as to the treatment of traumatic hemorrhage (these precepts being, indeed, as has been already observed, usually consonant with the teachings of the best modern authorities), there is one point upon which we cannot but think he is in error, if, indeed, his remarks upon the subject are not the result of some strange oversight in arranging his materials: this is in recommending, as he certainly appears to do, operative interference in cases of *primary* hemorrhage even when the bleeding has spontaneously ceased. Guthrie, indeed, went to the other extreme, and forbade operation under such circumstances, even in cases of *secondary* hemorrhage: this, however, is not the teaching nor the practice of the present day. As Erichsen well puts it, "In secondary hemorrhage . . . . the surgeon *may* proceed to adopt effectual means for the prevention of the recurrence of the bleeding after the first outbreak, even though all flow of blood have ceased when he sees the patient; and he *must* do so, and that without delay, if the hemorrhage have recurred more than once." But in a case of *primary* hemorrhage (unless the wounded vessel be exposed, when it should of course be secured), we conceive it to be the surgeon's duty *not* to resort to operative measures if the bleeding have spontaneously ceased. This rule is so well established and is founded upon such obvious reasons, that it will, we think, require much more than the one case detailed by Dr. Lidell, to erase it from its position as an accepted surgical *dictum.* Indeed we find, upon referring to our author's excellent paper in the number of this Journal for January, 1864 (from which Chapter IV. of the present work is mainly copied), that he there insists in forcible terms upon the propriety of this very rule, and declares that to ligate an artery "in such a case would be to inflict unnecessary torture upon the sufferer." Seeing that in 1864 Dr. Lidell was so clear upon this point, we are at a loss to understand why he should now have abandoned his former position, apparently upon the strength of merely one case, which occurred in 1861, and which is after all of but negative importance, for there is no proof that the patient would not have equally well recovered without the operation.

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[1] The liability to capillary hemorrhage appears to be particularly marked in those cases where the proportion of white or colourless blood corpuscles is increased; just as in the disease which Virchow calls "Leukæmia," and Bennett "Leucocythæmia."

Another point on which we cannot agree with Dr. Lidell is in his recommendation of the *lateral* ligature in cases of wound of large veins: Gross's[1] researches, to which our author refers on the very page on which he gives the above advice, show clearly, we think, that secondary hemorrhage is much more likely to follow the use of the lateral than of the ordinary double ligature.

With these exceptions, Dr. Lidell's observations on the treatment of traumatic hemorrhage seem to us to be both founded in reason and justified by experience. The reader may be a little surprised to find the important subject of *Torsion* (which appears to be the topic in connection with the arrest of hemorrhage, which just now occupies the first place in the mind of the coming surgeon) summarily dismissed in five and a half lines. Even before the late revival of the practice at the hands of British surgeons, which it may be argued has been since Dr. Lidell's date, torsion was a matter of sufficient importance to demand more space than this in a work which professes to give of wounds of bloodvessels "a more systematic, thorough, and complete account than any before presented," and which the editor assures us constitutes a "complete and exhaustive" treatise upon the topics discussed. *Acupressure* fares no better at the hands of our author, being likewise dismissed in less than six lines: the fact that Dr. Lidell "has no experience in the employment of this procedure," surely does not warrant its being thus ignored in any account of the treatment of traumatic hemorrhage, even if not claiming to be so "systematic, thorough, and complete" as that before us.

"The metallic ligature or suture," says Dr. Lidell, "generally appears to be preferable to the silken or linen article, because of its non-absorbent properties. Thus it is not liable to become soaked with decomposing discharges; and thus it produces less irritation of the surrounding parts than the other kinds of ligature." No references are given to cases in which Dr. Lidell has employed the metallic ligature for restraining hemorrhage, and we are, therefore, somewhat at a loss to know upon what *practical* (not *theoretical*) grounds our author bases his preference for a mode of treatment which, we confess, seems to us eminently ill adapted for military practice.

To Dr. Lidell's *second section*, which discourses of the secondary traumatic lesions of bone, we turn with special interest, because the author's name is prominently associated with the subject of osteo-myelitis, and because we have a pleasant recollection of an able paper from his pen "on contusion and contused wounds of bone," which appeared in the number of this Journal for July, 1865. This section embraces five chapters, which are devoted to, 1. Osteo-myelitis; 2. Periostitis; 3. Ostitis; 4. Caries; and 5. Necrosis. *Osteo-porosis* (a porous condition of bone, resulting from inflammatory action) is discussed in connection with osteo-myelitis, ostitis, and caries, respectively. To this section belong likewise the ten coloured plates, which, we may say at once, are the most beautiful illustrations of osteo-myelitis which we have ever seen. They are all drawn from nature by Köhler, and executed in the best style of chromo-lithography, at the well-known establishment of Bowen & Co., of this city. *Osteo-myelitis* is defined by Dr. Lidell as "inflammation of the medullary tissue of bone." It is, as he very justly observes, not a new disease, though it has not until recently received as much attention as it deserves, at least in our own country. Even now a considerable number of surgical writers do not recognize the disease except in its most destructive forms—the suppurative and gangrenous—and hence has arisen a confusion of terms, which (as we have pointed out in our edition of Erichsen's *Science and Art of Surgery*) has occasionally led to most deplorable errors in treatment. This chapter we consider by far the best portion of Dr. Lidell's whole book, and we should be glad if it could be not only read, but studied by all practising surgeons. After a brief bibliographical *résumé*, which does not claim to be exhaustive, our author gives a short sketch of the physiological anatomy of the marrow, taken chiefly from Robin, through the medium of the quarterly summary of this Journal for October, 1865 (pp. 498–503). Our author's division of osteo-myelitis into the acute and chronic varieties does not seem to us a very good one (and, indeed, he himself confesses that it is not satisfactory); a more scientific classification would be one founded upon the morbid anatomy of the disease in the different stages of the inflammatory process, whether going so far merely as simple cell proliferation or lymph production, or running on to suppuration of the medullary tissue, or still further to gangrene. Thus we might speak clinically of simple, of suppurative, and of gangrenous osteo-myelitis, the former (which, as we have seen, many surgeons ignore altogether) being the variety which is met with in the union of fractures by what the older writers described as *internal callus*, and which is a very frequent, if not constant accompaniment of ostitis, and an occasional one of inflammation of the periosteum.

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[1] See number of this Journal for April, 1867, p. 319.

Dr. Lidell very properly insists upon the distinction between osteo-myelitis and pyæmia, a distinction which, as we have shown elsewhere, was strangely ignored in the "Astley Cooper Prize Essay" of Dr. Braidwood. Osteo-myelitis is a very frequent antecedent and cause of pyæmia, and probably never its consequence; at the same time it is quite possible that *puriform* deposits (so called "metastatic abscesses") may occasionally be found, in pyæmic cases, in the medullary, as well as in other tissues of the body.

The causes, symptoms, pathological appearances, means of diagnosis and prognosis, and modes of treatment of osteo-myelitis, are well described by our author, and this chapter constitutes, upon the whole, we think, the best systematic account of the affection which has yet appeared in our language. With regard to the local treatment of osteo-myelitis, Dr. Lidell very properly lays stress upon the importance of free incisions, and recommends trephining in certain cases of the disease, especially of the suppurative variety, and when confined to a limited portion of the bone. We believe that even in the non-suppurative forms of osteo-myelitis advantage may be derived from the plan recommended by Erichsen in cases of ostitis, viz., making a longitudinal section through the compact tissue by means of a Hey's saw. The operation is less severe than that of trephining, while the relief from tension is equally well attained. If, however, medullary suppuration have actually occurred, it would probably be better to remove a portion of the compact wall of the affected bone, either with the saw or trephine, as was done with the most gratifying results in 1798, by the late Dr. Nathan Smith.[1]

Amputation or *disarticulation* are often required in cases of acute suppurative or gangrenous osteo-myelitis, and have been occasionally successful even when performed after the onset of pyæmic symptoms. When the medullary inflammation runs a less rapid course, amputation should not, we think, be usually performed, unless the disease has invaded the epiphyses, involving the neighbouring joints (pyarthrosis). Under the latter circumstances, removal of the affected limb may be practised with the best results, as in a case in which we amputated at the shoulder-joint for osteo-myelitis of the humerus, with pyarthrosis of shoulder and elbow, the result of a fall upon the ice.

An interesting case is cited by Dr. Lidell from the practice of Prof. Van Buren, in which osteomyelitis of the tibia was followed by spontaneous separation of the upper epiphysis: this case, our author believes to be the only one of the kind on record, with the exception of thirteen described by Klose, of Breslau, and two described by Gosselin. We ourselves several years ago, reported such a case, in which the part affected was the upper epiphysis of the humerus, although we confess that we did not appreciate the significance of the phenomenon at that time (see No. of this Journal for April, 1862, p. 414): we may add that Mr. Holmes refers to a specimen in St. Bartholomew's Hospital Museum, which shows "the head of the femur which had separated in the course of an attack of acute pyæmia, and was found lying loose in the cavity of an abscess which had formed in the joint."[2]

Chapters II. and III. of this section treat respectively of periostitis and ostitis, but present no features calling for special comment. In Chapter IV., Dr. Lidell takes up the consideration of caries, which he defines simply as "ulceration of the osseous tissue." This is, we think, upon the whole, the most philosophical, as it is certainly the most comprehensible definition of the term, but, to be consistent, we must adopt the converse proposition, and say that ulceration of bone is caries. This statement Dr. Lidell apparently does not agree to, at least he seems to recognize in a foot-note another form of osseous ulceration; as being "required to effect the separation of necrosed fragments." The fact is, however, that though we may have necrosis with caries (just as we may have gangrene with ulceration), the natural separation of necrosed portions of bone is in the large majority of instances effected, like that of gangrenous soft parts, *not* by ulceration but by granulation; the removal of a sequestrum, as every one knows, does not leave a *carious* cavity, but a granulating surface due to the rapid proliferation of living bone tissue, a process to which Ollier gives the expressive name of medullization. Dr. Lidell's remarks upon caries, though brief, are interesting and judicious: it may cause surprise, however, that, under the head of treatment, no mention is made of the use of the *Liqueur de Villate*, so highly commended by M. Notta, or of the seton, an application praised by Bromfield, and recently brought prominently before the profession by Prof. Sayre, of Bellevue Hospital.

Chapter V., "Of Necrosis," demands particular attention, because in it Dr. Lidell describes a disease of bone which he calls "Mephitic or wet gangrene," which he considers to have been hitherto unnoticed, and of which he says in the preface, "It is believed that this subject is quite new." We quote our author's account of this affection in his own words.

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[1] Medical and Surgical Memoirs, p. 109.

[2] Surgical Treatment of Children's Diseases, p. 423.

"The contrast in appearance between that presented by a piece of bone involved in necrosis [which Dr. Lidell defines as dry gangrene of bone] and another piece of bone involved in mephitic gangrene is very strongly marked. The difference in appearance is even more striking than that which obtains between the wet and the dry gangrene of the soft parts. *Necrosed bone is dry, hard, white or yellowish-white in colour, insensible, scnorous when struck, and comparatively inodorous. But osseous tissue invaded by mephitic gangrene is moist, more or less softened in consistence, not unfrequently the softening is considerable, dirty gray, dirty pale-green, or dirty greenish-brown in colour, and it exhales the intolerably offensive odour of rotting bone.* Necrosed bone bears a strong resemblance to the bleached osseous tissue of the skeleton in appearance. Gangrenous bone (mephitic) does not present any such resemblance. We will take this opportunity to remark further, concerning mephitic gangrene of bone, that it is not unfrequently met with in military practice in connection with traumatic lesions of the osseous tissue. I have seen it occur in a case of gunshot contusion of the femur. I have met with it in a case of gunshot fracture of the thigh. I have seen it in other instances of compound comminuted fracture of the long bones. I have also met with it several times in the stump bones of amputated limbs. Mephitic gangrene of the osseous tissue is often associated with pyæmia, ... although it does not absolutely depend for its occurrence upon pyæmia, still [it] belongs exclusively to certain depressed conditions of the vital powers—to certain depraved states of the body at large . . . . The local disease with which it was always associated, according to my observations, was inflammation of the medullary tissue of the affected bone; but the relationship between them appears to me, for the most part, to have been purely accidental, and the real cause of this peculiar rot of the osseous tissue should be sought for elsewhere, and generally in a depraved condition of the whole body, but more especially of its circulating fluids."

Dr. Lidell mentions two cases of mephitic gangrene of bone which he published in the numbers of this journal for April and July, 1865. On referring to them we find it stated, in one case, that "the *compact tissue* was *white* and the *marrow dirty grayish-brown in colour*, and *very offensive in odour*" [No. for April, 1865, p. 301], while it is said in the other case that "*On section with a saw, the gangrenous osseous tissue presented a dirty dark-green or greenish-brown colour, and an offensive odour of putrefaction;*" so that we infer that the description of the physical characters given above applies, not to the compact structure, but to the medullary tissue of the affected bone.

Though Dr. Lidell is, we believe, correct in thinking that this form of osseous disease is not usually recognized as a distinct affection by surgical writers, we cannot but think that he is mistaken in believing that it has been hitherto unobserved; thus Bromfield speaks of bones being made "rotten, even to their centre," as the result of "violent contusion or fracture," while Léveillé (quoted by Ribes) attributes to Brugnone and Penchienati (*anno* 1787) the observation that when necrosis originates from disease of the medullary cavity the marrow itself is destroyed or *putrefied* as well as its envelope. Cloquet and Bérard again clearly recognize the variation in colour in different specimens of dead bone, and quote Wilson as saying that necrosis of the compact tissue is white, but of the spongy portion of bone, yellow, brown, or black. Now although the above expressions—rotten, putrefied, etc.—may of course be only figurative, we confess that it seems to us more natural to suppose that the authors using them did actually recognize a form of dead bone which bears the same relation to ordinary necrosis, that moist does to dry gangrene of the soft parts. Coming down to modern times we find in Holmes' well-known work on the surgery of childhood, a case in which, eleven days after the removal of an ordinary sequestrum from the popliteal space, the patient died "with no rigors, or any distinct evidence of pyæmia," the autopsy showing the periosteum entirely separated from the femur "from the epiphysis below, nearly to the middle of the bone, all of which seemed in process of dying; the medullary tissue was quite black" (page 406). We have ourselves been long practically familiar with the fact that dead bone was met with in these two forms, and can recall more than one case in which the appearances so vividly described by Dr. Lidell as belonging to mephitic gangrene were present. This form of dead bone, or, as we should like to call it, moist necrosis, is chiefly seen we believe in bones which contain a large proportion of spongy tissue (we have seen it well marked in the astragalus), but may also occur in the long bones, as the result of violence which *suddenly* deprives the part of its vitality: thus it may be seen in cases of fracture, in what Dupuytren called the primary splinters (if these be allowed to remain), or as the result of violent osseous contusion, such as is especially met with in military practice. The decision of the question whether in any particular case, death of bone shall take the form of ordinary necrosis, or of this moist variety of gangrene, which Dr. Lidell calls mephitic, depends, we believe, not upon the constitutional condition of the patient, but upon the local state of the part affected at the moment of death, whether full or not of blood and other fluids. Thus, if the whole thickness of a long bone is killed *suddenly and at once*, the marrow being full of blood, the gangrene will probably be of the *moist* variety, while if, as is ordinarily the case, the death of the part results from a *slow* process (*ostitis*) there will be a deficiency of fluid, and we will have *dry* gangrene, constituting the common form of necrosis. The state of affairs is precisely analogous to that which determines the form of gangrene in soft tissues, and the explanation we have suggested is that which Mr. Coote has given and ably defended, as accounting for the occurrence of moist or of dry gangrene in ordinary cases of mortification. (*Holmes' Syst. of Surgery*, 2d edit., vol. i. p. 152.)

By the above comments we do not wish to appear in any degree to detract from Dr. Lidell's merit, as being the first to point out clearly, in print, the distinctive characters which mark these two forms of osseous gangrene. Though we do not agree with the explanation which he gives of the phenomena in question, we fully recognize the value of his remarks upon the subject.

We are glad to observe that, in this section, Dr. Lidell has made so much, and, we may add, such judicious use of our long review of Ollier's *Traité Expérimental et Clinique de la Régénération des Os, etc.*, which was published in the number of this Journal for January, 1868; nor do we complain that Dr. Lidell has thought proper, in doing so, to ignore the reviewer's share in the matter, and to quote in every instance his words as if they were taken directly from Ollier himself. The reviewer (like Johnson's lexicographer—a harmless drudge) must expect to spin his brains for the benefit of others; being satisfied to find his labour, like virtue, its own sole reward. Had Dr. Lidell, however, deigned to hint that his knowledge of Ollier's work was entirely obtained through the medium of a review, he might have avoided the rather awkward mistake of quoting as he does on pages 417 and 449, a sentence as Ollier's, which has no equivalent in the French surgeon's text, and for which that harmless drudge, the reviewer, is entirely and solely responsible.

So much space has been occupied with the first and second sections of Dr. Lidell's volume, that we are compelled to omit noticing the third ("On Pyæmia"), which we regret the less, because, as this part of the book is brought down only to the latter part of 1865, it is now, of course, quite out of date. No notice is taken of the labours of Callender, Savory, Bristowe, or Braidwood, to say nothing of Cohnheim, whose views, if accepted, are, we need hardly say, likely to completely revolutionize our ideas as to the possibility of pus entering the circulation.

Looking upon this volume as a whole, we cannot avoid a certain feeling of disappointment. The papers which Dr. Lidell contributed in former years to this Journal were so very good, that our expectations were possibly thereby raised to an unreasonable pitch; and we are sorry to find the contents of this book neither so new nor so exhaustive of the subjects discussed as we had anticipated. We are particularly sorry for this, because the book, from its semi-official character, as published by the Sanitary Commission, will excite more attention abroad than if it were merely issued upon the responsibility of an individual. More than this, the whole book comes, to use an old expression, as it were, "the day after the fair;" the "War of the Rebellion" is over; its lessons have been taught, and, we think, pretty well learned by those who are not past learning anything at all; and though the Horatian nine years of probation may improve the quality of poetry, any researches in so progressive a science as that of surgery must lose their freshness, if even three years elapse between the writing and the reading. The bringing to light of posthumous scientific works is always of questionable expediency; but particularly so when it is not the author, but the doctrines he inculcates, that are dead before the day of publication.

J. A., Jr.

ART. XX.—*The Physiology of Man; designed to represent the Existing State of Physiological Science, as applied to the Functions of the Human Body.* By AUSTIN FLINT, Jr., M. D., Professor of Physiology and Microscopy in the Bellevue Hospital Medical College, New York; Fellow of the New York Academy of Medicine; Member of the Medical Society of the County of New York; Resident Member of the Lyceum of Natural History in the City of New York, &c. &c. *Secretion, Excretion, Ductless Glands, Nutrition, Animal Heat, Movements, Voice and Speech.* 8vo. pp. 526. New York: D. Appleton & Co., 1870.

OUR readers will remember that we have already presented them with brief reviews of the first two volumes of this work. These volumes treated of the blood, circulation, respiration, alimentation, digestion, absorption, and the lymph and chyle. The volume now before us is devoted to the consideration of secretion, nutrition, calorification, ciliary, elastic and muscular movements, and to the voice and speech. In the preparation of "The Physiology of Man," Prof. Flint has endeavoured to make each volume a separate and distinct treatise, complete in itself, the full series being intended to cover the entire subject of physiology.

The first chapter of the volume just published treats of secretion in general, the relation of this function to nutrition, the mechanism of its production and of that of the excretions, and the extent to which it is influenced by the composition and pressure of the blood and by the nervous system. The structure of the various secreting organs is also described.

The second chapter is occupied with an account of the physiological anatomy of the serous, synovial, and mucous membranes, and of the sebaceous, ceruminous, and Meibomian glands. The physical characters, chemical composition, and uses of the different serous, synovial, mucous, and sebaceous fluids are carefully described.

The whole of the third chapter is taken up with the consideration of the mammary secretion. Prof. Flint, in his anatomical description of the mammary glands, adopts the conclusions of Robin, as to the physiological changes which these organs undergo during the different periods and conditions of female life.

According to Robin and Sappey, the mammary gland, during the intervals of lactation, is not a secreting organ.

> "It presents the ducts ramifying to a certain extent in the substance of the lobes into which the structure is divided, but their branches are short, and possess but few of the glandular acini that are observed in every part of the organ during lactation. This difference in the structure of the gland is most remarkable, and as it passes from a secreting to a non-secreting condition at the end of lactation, the ducts retract in all their branches, and most of the secreting *culs-de-sac* disappear. At this time the glandular tissue is of a bluish-white colour, and loses the granular appearance which it presents during activity. The ducts are then lined with a small nucleated pavement-epithelium, which is not found during the secretion of milk. These changes, pointed out by Robin, whose observations have been verified and extended by Sappey, are confined almost exclusively to the secreting structure of the glands. The interstitial tissue remains about the same, the bloodvessels, only, being increased in number during lactation. * * *
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> "Each acinus of the mammary gland is made up of from twenty to forty secreting vesicles or *culs-de-sac*. These vesicles are irregular in form, often varicose, and sometimes enlarged and imperfectly bifurcated at their terminal extremities. During lactation their diameter is from $\frac{1}{400}$ to $\frac{1}{300}$ of an inch. During pregnancy, and when the gland has just arrived at its full development, the secreting vesicles are formed of a structureless membrane, lined with small nucleated cells of pavement-epithelium. The nuclei are relatively large, ovoid, and imbedded in a small amount of amorphous matter, and they almost touch each other. Sometimes the epithelium is segmented, and sometimes it exists in the form of a continuous nucleated sheet. When the secretion of milk becomes active, the epithelium entirely disappears, and reappears as the secretion diminishes. This observation is due to Robin, and has an important bearing upon the mechanism of the secretion of milk.
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> "During the intervals of lactation, as the lactiferous ducts become retracted, the grandular *culs-de-sac* disappear; and in pregnancy, as the gland takes on its full development, the ducts branch and extend themselves, and the vesicles are gradually developed around their terminal extremities. These changes in the development of the mammæ at different periods are most remarkable, and are not observed in any other part of the glandular system."

From this description it will be seen that the mammary glands differ from other glandular organs in the fact that while in the latter epithelial cells seem to be the active agents in producing the secretions, in the mammæ the disappearance of the epithelium from the secreting *culs-de-sac* during the period of greatest functional activity of the gland leaves the work of secretion to be performed by the amorphous membrane of the vesicles alone.

A large portion of the third chapter is occupied with an account of the mechanism of the secretion of milk, the conditions which influence this secretion, such as diet, mental emotion, &c., the quantity, properties, composition, and microscopical characters of milk, &c.

The next four chapters are devoted to the excretory action of the skin and kidneys. The differences between the secretions proper and excretions, and the composition, mode of production and discharge of the excretions are briefly discussed. The physiological anatomy of the skin and kidneys is described with sufficient minuteness of detail. Prof. Flint dwells at some length, also, upon the mechanism of the formation and discharge of the urine, fully recognizing the important relations which this act bears to the processes of nutrition and disassimilation, and the necessity of studying all the conditions by which it may be modified.

In 1821 Prévost and Dumas detected, for the first time, urea in normal blood. Their observations were confirmed and extended by Ségalas and Vauquelin in 1822, and verified in the human subject, in a case detailed by Shearman in 1848. Subsequently Marchand, Picard, Poisseuille, Gobley, and others, have shown that urea is a normal constituent of blood. Still more recently, Wurtz has proven that this substance is ordinarily present in the lymph and chyle in larger quantities than in the blood.

"These facts, which have been almost universally regarded as established, have led physiologists to adopt the view that the peculiar excrementitious principles found in the urine are not produced by the kidneys, but are formed in the system by the general process of disassimilation, are taken up from the tissues by the blood, either directly or through the lymph, and are merely separated from the blood in the kidneys; and it has consequently been pretty generally assumed that nearly, if not all, the constituents of the urine preëxist in the circulating fluid. There is, indeed, no well-defined principle in the urine that has not been actually demonstrated in the blood. As an additional argument in favour of this view of the mechanism of the urinary excretion, it has been ascertained that when the kidneys are interrupted in their function, there is a tendency to the elimination of the excrementitious principles of the urine by lungs, skin, and alimentary canal; and that these matters only accumulate in the blood after this vicarious effort has failed to effect their complete discharge.

"These ideas have seemed to be so completely justified by facts, that they have been applied to the mechanism of excretion by other organs, such as the skin and the liver; but within a few years, the older observations with regard to nephrotomized animals have been discredited; and it has been asserted, as the result of experiment, that urea and the urates do not accumulate in the blood after removal of the kidneys, but that this result only follows when both ureters have been tied. The experiments on which this idea is based have been applied mainly to the pathology of uræmic intoxication, but it is evident that they bear directly upon the mechanism of excretion. It is not assumed, however, that excrementitious principles are not formed by the disassimilation of the tissues; but it is asserted that urea and the urates are produced in the kidneys by a transformation of the excrementitious matters, creatine, creatinine, etc., which exist in the blood. It is foreign to our purpose to discuss *in extenso* the pathological conditions produced by the retention of the urinary principles in the blood; and we shall consider this question only so far as it bears upon the physiology of excretion.

"The original experiments of Prévost and Dumas are very strong arguments in favour of the view that has been so long almost unquestioned; viz., that urea is simply separated from the blood by the kidneys; but the more recent observations of Bernard and Barreswill, Hammond, and others, while they confirm the first experiments on this subject, have added very considerably to our knowledge of the mechanism of uræmic poisoning after extirpation of the kidneys. The kidneys, it has been found, can readily be removed from living animals, dogs, cats, rabbits, etc., without any great disturbance immediately following the operation. Bernard and Barreswill found that animals from which both kidneys had been removed did not usually present any distinctive symptoms for a day or two after, except that they vomited and passed an unusual quantity of liquid from the intestinal canal. During this period, the blood never contained an abnormal quantity of urea; but the contents of the stomach and intestine were found to be highly ammoniacal. During this time, also, the secretions from the stomach and intestines, particularly the stomach, became continuous, as well as increased in quantity. Animals operated upon in this way usually live for four or five days, and then die in coma following upon convulsions. Toward the end of life, the secretion of gastric and intestinal fluids becomes arrested, probably from the irritating effects of ammoniacal decomposition of their contents, and then, and then only, urea is found to accumulate enormously in the blood.[1]

"It is thought by Bernard that the hypersecretion by the gastric and intestinal mucous membrane, in nephrotomized animals, is an effort on the part of the system to eliminate the urea, which is decomposed by contact with these membranes into carbonate of ammonia. This view is sustained by the fact that when urea is introduced into the alimentary canal in living animals, it disappears almost immediately and is replaced by the ammoniacal salts.[2] Consequently, after removal of the kidneys, we should not expect to find an increased quantity of urea in the blood, until its elimination by the mucous membrane of the alimentary canal has ceased; but the fact that it then accumulates in large quantity cannot be doubted.

"The results of the experiments of Dr. Hammond entirely correspond with those obtained by Bernard and Barreswill. He has also confirmed the fact, observed by Ségalas and Vauquelin, that urea is an active diuretic when injected in small quantity into the veins of a healthy animal;[3] and that in this case it does not produce any poisonous effects, but is immediately eliminated. But when urea is injected into the vascular system of a nephrotomized animal, it produces death in a very short time, with the characteristic symptoms of uræmic poisoning.[4] We have frequently removed both kidneys from dogs, and when the operation is carefully performed, the animals live from three to five days. In some instances they have been known to live for twelve days or even longer,[5] but death always takes place finally with symptoms of blood-poisoning.

"The experiments which are supposed to show that urea and the urates are actually formed in the kidneys—to which we have already alluded—were made with the view of comparing the effects of removal of both kidneys with those produced by tying the ureters. According to the observations of Oppler, the blood contains much more urea after the ureters are tied than after removal of the kidneys.[6] Perls states, as the result of experiments on rabbits, that no accumulation of urea in the muscular substance can be proved after removal of the kidneys; but that this occurs only after tying the ureters, and the quantity seems to be greatest in the first twenty-four or forty-eight hours after the operation.[7] Essentially the same results were obtained by Zalesky,[8] who asserts that the proportion of urea in the blood after removal of the kidneys in dogs is about the same as in the normal condition. These experiments, which are directly opposed in their results to the well-considered observations of Prévost and Dumas, Bernard and Barreswill, Hammond, and many others, cannot be accepted unless it be certain that all the necessary physiological conditions have been fulfilled. In the first place, it was positively demonstrated, as early as 1847, that urea does not accumulate in the blood immediately after removal of the kidneys, but only toward the end of life, and then it is found in enormous quantity.[1] In the second place, it is well known that the operation of tying the ureters is followed by an immense pressure of urine in the kidneys, which not only disturbs the eliminative action of these organs, but affects most seriously the general functions. Since the influence of the nervous system upon the secretions has been so closely studied, it is evident that the pain and disturbance consequent upon the accumulation of urine above the ligated ureters must have an important reflex action upon the secretions; and this would probably interfere with the vicarious elimination of urea and other excrementitious principles by the stomach and intestines. It is well known to practical physicians that an arrest of these secretions, in cases of organic disease of the kidneys, is liable to be followed immediately by evidences of uræmia, and that grave uræmic symptoms are frequently removed by the administration of remedies that act promptly and powerfully upon the intestinal canal. As additional evidence of the great disturbance of the system, aside from the mere accumulation of excrementitious principles in the blood, which must result from tying the ureters, we have the intense distress and general prostration, always so prominent in cases of nephritic colic, where there is only temporary obstruction of one ureter. The pathological condition of the kidneys which follows the operation of tying the ureters was observed by Richerand, many years ago,[2] and the observations of Oppler, Perls, and Zalesky, on this subject are not entirely novel.[3]

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[1] Bernard, Liquides de l'organisme, Paris, 1859, tome ii. p. 36, et seq. These experiments were first published by Bernard and Barreswill in the Archives générales de médecine, Paris, 1847, tome xiii. p. 449.

[2] Bernard, op. cit., p. 51.

[3] Ségalas, Jl. de Physiologie. Paris, 1822, tome ii.

[4] Hammond, Physiological Memoirs—Uræmic Intoxication, Philadelphia, 1863, p. 347.

[5] Hammond, op. cit., p. 303.

[6] Oppler, Beiträge zur Lehre von der Urämie.—Virchow's Archiv, Berlin, 1861, Bd. xxi., S. 260, et seq.

[7] Perls, in Canstatt's Jahresbericht, Wurzburg, 1865, S. 194. The experiments of Perls are not sufficiently extended to be very satisfactory. Rejecting one experiment in which the animal was killed twenty-four hours after removal of the kidneys—when no accumulation of urea could be expected—there are three examinations of the muscular substance after death from removal of the kidneys, and four after death from tying the ureters. In an examination after removal of the kidneys, 2.32 parts per 1000 of nitrate of urea were found; in the second, there were no crystals in the extract; and in the third there were slight traces of urea. These animals died three or four days after the operation. Five examinations were made of the muscular substance in animals that died after tying the ureters. In three of these examinations, urea was found in considerable quantity; and in the remaining two, urea was present in very small quantity in one instance, and in the other, it is not stated that any urea was found. No examinations were made of the blood. These experiments on the accumulation of urea in nephrotomized animals are hardly sufficient to overthrow the researches of Prévost and Dumas, and others by whom their observations have been confirmed.

[8] Zalesky, Untersuchungen über den uræmischen Process und die Function der Nieren, Tübingen, 1865.

"From a careful review of the important facts bearing upon this question, there does not seem to be any valid ground for a change in our ideas concerning the mode of elimination of urea and the other important excrementitious constituents of the urine. There is every reason to suppose that these principles are produced in the various tissues and organs of the body during the process of disassimilation, are taken up by the blood, and are simply separated from the blood by the kidneys. There may be unimportant modifications of some of these principles in the kidneys or in the urine, such as the conversion of a certain amount of creatine into creatinine, but the great mass of excrementitious matter is separated from the blood by the kidneys unchanged."

In the seventh chapter the properties and composition of the urine are considered. Our author here presents us with an elaborate table representing, very nearly, the latest and most reliable observations upon the relative and absolute quantities of the urinary constituents. The composition of the urine, and the manner in which it is influenced by age, sex, season, periods of the day, food, muscular exercise, and mental exertion, are elaborately discussed.

The physiological anatomy of the liver is minutely described in chapter eighth. Few questions in minute anatomy have attracted more attention than the relations of the hepatic cells to the radicles of the bile-ducts, and the origin of these ducts in the lobuli. Kiernan, in 1833, was led by his researches to suppose that a reticulated network of ducts existed in the lobules, and that these communicated with the ducts in the interlobular spaces. This view was essentially adopted by Prof. Leidy in his paper on the comparative anatomy of the liver published in vol. xv., new series, of this Journal. In his treatise on human anatomy, published thirteen years later, this observer does not offer any positive opinion upon this subject. In 1856 Dr. Beale, of London, maintained that there existed in the lobules delicate tubes, about as wide as the liver-cells, each tube inclosing a row of these cells. Kölliker at one time adopted views somewhat analogous to those of Beale. In the last edition of his work on microscopic anatomy, published at Leipzig in 1867, he abandons these views altogether. According to Prof. Flint, late researches have shown that the following is probably the true relation of the ultimate ramifications of the bile-ducts in the lobules to the hepatic cells :—

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[1] Bernard and Barreswill, loc. cit.

[2] Richerand et Bérard, Nouveaux élémens de physiologie, Paris, 1833, tome ii. p. 142.

Richerand noted great disturbance in animals, thirty-six hours after tying both ureters. In a cat on which this operation had been performed, death took place on the third day. "The kidneys were swollen, softened, and, as it were, macerated; all the organs, all the humours, and all the blood itself, participated in this urinous diathesis." (*Loc. cit.*, p. 143.)

[3] Milne-Edwards, Leçons sur la Physiologie, Paris, 1862, tome vii. pp. 457, 459.

"In the substance of the lobules is an exceedingly fine and regular network of vessels, of uniform size, about $\frac{1}{1000}$ of an inch in diameter,[1] which surround the liver-cells, each cell lying in a space bounded by inosculating branches of these canals. This plexus is entirely independent of the bloodvessels, and it seems to inclose in its meshes each individual cell, extending from the periphery of the lobule, where it is in communication with the interlobular bile-ducts, to the intralobular vein in the centre. The vessels probably have excessively thin, homogeneous walls—though the existence of their membrane has not been positively demonstrated—and are without any epithelial lining, being much smaller, indeed, than any epithelial cells with which we are acquainted. This arrangement, as far as is known, has no analogue in any other secreting organ.

"Although it is within three or four years only that the reticulated bile-ducts of the lobules have attracted much attention, they were discovered in the substance of the lobules, near the periphery, by Gerlach, in 1848.[2] It is evident, from an examination of his figures and description, that he succeeded in filling with injection that portion of the lobular network near the borders of the lobules, and demonstrated the continuity of their vessels with the interlobular ducts; but he did not recognize the vessels nearer the centre of the lobule. His views, however, received very little attention, and are not even mentioned in most of the authoritative works on general anatomy. Within the last few years, Budge,[3] Andrejevic,[4] Mac-Gillavry,[5] Chrzonszczewsky,[6] Wyss,[7] Hering,[8]

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[1] This is the result of the measurements by Dr. Stiles (Bulletin of the New York Academy of Medicine, 1868, vol. iii. p. 351), of the ducts in the livers of the bullocks that died of the "Texas disease," which we have verified in the same specimen. The measurements given by Frey are about the same (Handbuch der Histologie, Leipzig, 1867, S. 558).

[2] Gerlach, Handbuch der allgemeinen und speciellen Gewebelehre, Mainz, 1848, S. 280, et seq.

[3] Budge, Ueber den Verlauf der Gallengänge.—Archiv für Anatomie, Physiologie und wissenschaftlichen Medicin, Leipzig, 1859, S. 642, et seq.

[4] Andrejevic, Ueber den feineren Bau der Leber.—Sitzungsberichte der mathematisch-naturwissenschaftlichen Classe der Kaiserlichen Akademie der Wissenschaften, Wein, 1861, Bd. xliii., I. Abtheilung, S. 379, et seq.

[5] Mac-Gillavry, Zur Anatomie der Leber, Idem, Wein, 1865, Bd. i., II. Abtheilung, S. 207, et seq.

[6] Chrzonszczewsky, Zur Anatomie und Physiologie der Leber.—Virchow's Archiv, Berlin, Jan., 1866, Bd. xxxv., S. 153, et seq.

[7] Wyss, Beitrag zur Histologie der icterischen Leber.—Virchow's Archiv, Berlin, April, 1866, Bd. xxxv., S. 553, et seq.

[8] Hering, Ueber den Bau der Wirbelthierleber.—Sitzungberichte, etc., Wein, 1866, Bd. liv., I. Abtheilung, S. 335.

Frey,[1] Eberth,[2] Kölliker,[3] and others, have investigated this interesting question, by various methods, and have arrived at the most positive and satisfactory results. It is now demonstrated, beyond a doubt, that there are either canals or interspaces between the liver-cells in the lobules, and that these open into the interlobular hepatic ducts. It is still a question of discussion, whether these passages are simple spaces between the cells, or are lined by a membrane; but this point has no great physiological importance, and we can readily imagine that it would be exceedingly difficult to demonstrate a membrane forming the wall of a tube, the whole measuring but $\frac{1}{10000}$ of an inch. In the investigations which have thus demonstrated the arrangement of the finest bile-ducts in the lobules, the livers of rabbits have been found to present the most favourable conditions. It has been assumed, however, that in the method of study by artificial injection, the appearance of canals might be due to the extravasation of the fluid, which might possibly take on a regular arrangement between the cells. This is an error of observation that would not be unlikely to occur; but not only have these fine ducts been filled by injection, and their connection with the interlobular ducts apparently established, they have been observed filled with inspissated bile in icteric livers.[4] A method of study, very ingenious and highly satisfactory in its results, was adopted by Chrzonszczewsky. He introduced into the bloodvessels or stomach of a living animal a solution of indigo-carmine, and within one or two hours, killed the animal, when the whole network of ducts in the lobules was found unbroken and connected with the interlobular vessels. The drawings of these appearances accompanying the memoir are exceedingly beautiful.[5]

"A peculiarly favourable opportunity for observing the bile-ducts in the lobules was presented in the livers of animals that died of the so-called 'Texas cattle-disease.' This was taken advantage of by Dr. R. C. Stiles, who was able to verify, in the most satisfactory manner, the facts which have lately been established by the German anatomists.[6] In these livers, the finest bile-ducts were found filled with bright yellow bile, and their relations to the liver-cells were beautifully distinct. In the examination of these specimens, the presence of what appeared to be detached fragments of these little canals is an argument in favour of the view that they were lined by a membrane of excessive tenuity. These interesting anatomical points were demonstrated by Dr. Stiles before the New York Academy of Medicine, and we have since been able to verify them in every particular."

With regard to the secretion of bile, Prof. Flint maintains that certain elements of this fluid are separated from the blood, while others are manufactured from materials supplied by the blood in the liver-cells situated outside of the plexus of origin of the biliary duct, and subsequently taken up by these delicate vessels and carried to the excretory biliary passages. He believes also that bile is produced in the liver from the blood distributed in its substance by the portal vein and the hepatic artery, and not from either of these vessels exclusively; and that the bile may continue to be secreted, if either one of these vessels be obliterated, provided the supply of blood be sufficient.

The subject matter of the next chapter is the excretory function of the liver. Our author here treats of the general properties and composition of the bile, the origin of the biliary salts and their tests, &c. The greater part of this chapter, however, is taken up with a condensed account of Prof. Flint's researches into the origin of cholesterine, its absorption by the blood circulating through the brain, its elimination by the liver, and its accumulation in the blood in certain cases of organic, hepatic disease. With these researches our readers are familiar, as the paper in which they were originally detailed was published in this Journal in 1862.

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[1] Frey, Handbuch der Histologie, Leipzig, 1867, S. 557, et seq.

[2] Eberth, Untersuchungen über die normale und pathologische Leber.—Virchow's Archiv, Berlin, Mai, 1867, Bd. xxxix., S. 70, et seq.

[3] Kölliker, Handbuch der Gewebelehre, Leipzig, 1867, S. 428.

[4] Wyss, loc. cit.

[5] Loc. cit.

[6] Stiles, Bulletin of the New York Academy of Medicine, 1868, vol. iii. p. 350; Report of the New York State Cattle Commissioners, in connection with the Special Report of the Metropolitan Board of Health on the Texas Cattle-Disease.—Transactions of the New York State Agricultural Society, Albany, 1868, vol. xxvii.—1867, Part ii., pp. 1137, 1160; and Third Annual Report of the Metropolitan Board of Health of the State of New York, Albany, 1868, p. 303.

That much vexed question, the glycogenic function of the liver, is ably discussed in chapter tenth. It is well known that in 1848, Claude Bernard, as the result of a series of elaborate experiments, announced that the liver is constantly producing sugar of the variety that had long been recognized in the urine of persons suffering from diabetes mellitus. Nine years later this observer discovered in the substance of the liver a peculiar sugar, forming material analogous in its composition and properties to starch. He demonstrated that in all animals the blood coming from the liver by the hepatic veins contains sugar; and that the presence of this principle here is not dependent upon the starch or sugar of the food. He also showed that in carnivorous animals, fed exclusively upon meat, no sugar could be found in the blood of the portal vein; but, under normal conditions, it is always present in the blood of the hepatic veins. He furthermore proved that the amount of sugar is proportionately diminished in passing from the liver to the heart, and that it finally disappeared while passing through the lungs.

The experiments of Bernard and the conclusions based upon them, have given rise to a very animated controversy among physiologists. Lehmann, Frerichs, Poggiale, Leconte, and others have confirmed them; while Figuier, Pavy, McDonnell, Meissner, Jaeger, Schiff, and others have failed to verify them. In Great Britain the conviction prevails that the liver does not produce sugar during life, and that the sugar found by Bernard and others is due to *post-mortem* action. With the view of harmonizing, if possible, the discordant observations of Bernard and Pavy, Prof. Flint instituted a number of experiments which he details at length:—

"From our own experiments we have come to the conclusion that Dr. Pavy and those who adopt his views cannot consistently deny that sugar is constantly formed in the liver and discharged into the blood of the hepatic veins; nor can Bernard and his followers ignore the fact that the liver does not contain sugar during life; although, as has been shown by Pavy, and more specifically by McDonnell,[1] sugar appears in the liver in great abundance soon after death.

"In the experiments that we have just detailed, which are simply typical examples of numerous unrecorded observations, we attempted to verify the observations of Pavy without losing sight of the facts observed by Bernard, and to verify the experiments of Bernard in the face of the apparently contradictory statements of Pavy. When an animal is in perfect health, has been kept quiet before the experiment, and a piece of the liver is taken from him by two sweeps of the knife, the blood rinsed from it and the tissue cut up into water already boiling, the whole operation occupying only ten seconds (as was the case in Experiment III.), the liver is as nearly as possible in the condition in which it exists in the living organism. As this was done repeatedly in animals during digestion and in the intervals of digestion, and an extract thoroughly made without finding any sugar, we regarded the experiments of Pavy as entirely confirmed, and the fact demonstrated that the liver does not contain sugar during life. On the other hand, when we made the experiment on the liver as above described, and, in addition, took specimens of the portal blood and the blood from the hepatic veins, under strictly physiological conditions (as was done in Experiment IV.), and found no sugar in the portal blood or in the substance of the liver, but an abundance in the blood of the hepatic veins, it was impossible to avoid the conclusion that the sugar was formed in the liver, and was washed out in the blood as it passed through.

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[1] Observations on the Functions of the Liver, Dublin, 1865.

"In treating of the mechanism of the formation of sugar in the liver, we will describe more fully the glycogenic matter; but, taking into consideration the demonstration of the presence of sugar in the blood of the hepatic veins by Bernard; his discovery of the *post-mortem* production of sugar in a liver washed sugar-free, probably from a substance remaining in the liver and capable of being transformed into sugar; the negative results of the examinations of the liver for sugar by Pavy; and, adding to this our own experiments upon all of these points, we are justified in adopting the following conclusions:—

"1. A substance exists in the healthy liver, which is capable of being converted into sugar; and inasmuch as this is formed into sugar during life, the sugar being washed away by the blood passing through the liver, it is perfectly proper to call it glycogenic, or sugar-forming matter.

"2. The liver has a glycogenic function, which consists in the constant formation of sugar out of the glycogenic matter, this being carried away by the blood of the hepatic veins, which always contains sugar in a certain proportion. This production of sugar takes place in the carnivora, as well as in those animals that take sugar and starch as food; and it is, essentially, independent of the kind of food taken.

"3. During life, the liver contains only the glycogenic matter and no sugar, because the great mass of blood which is constantly passing through this organ washes out the sugar as fast as it is formed; but after death, or when the circulation is interfered with, the transformation of glycogenic matter into sugar goes on; the sugar is not removed under these conditions, and can then be detected in the substance of the liver."

The ductless glands receive attention in the next chapter. Our author here describes the minute anatomy of the spleen, suprarenal capsules, thyroid, thymus, and perineal glands, and the pituitary body. Notwithstanding the labour bestowed upon the study of these organs, their function still remains a *terra incognita* in physiology.

In the next three chapters our author treats of nutrition, the nature of the forces involved in it, and the conditions which influence it; animal heat and its sources, the circumstances which produce fluctuation in the temperature of the body, the relations of animal heat to the various processes of nutrition, the influence exerted upon it by the nervous system, and the manner in which it is equalized. In this part of his work Prof. Flint endeavours to determine in what part or parts of the organism heat is generated; what is the relative importance of the several processes of nutrition in regard to the amount of heat generated; what are the principles invariably and of necessity consumed and produced in the organism in calorification; what is the relative importance of the principles thus consumed, and the products thus generated and thrown off; and lastly how far we have been able to follow the material transformations in the organism which involve the consumption of certain principles, the production of new compounds, and the generation of heat.

Not the least important part of the volume before us is comprised in the last three chapters, in which the general properties of contractile tissues, muscular contraction, the passive organs of locomotion, and the physiology of the voice and speech are taken up in detail and examined at length.

With this brief notice of its contents, we take leave of the third part of Prof. Flint's admirable treatise, cordially recommending it to the careful examination of those interested in physiological studies. J. A. M.

ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

ART. XXI.—*Guy's Hospital Reports.* Edited by C. HILTON FAGGE, M. D., and ARTHUR E. DURHAM. Third Series, Vol. XV. 8vo. pp. xvii., 652. London: John Churchill and Sons, 1870.

THE present volume of these Reports will, it is believed, fully sustain the reputation possessed by this most excellent series. Many of the papers are illustrated by plates (two of them coloured) and by wood-cuts, there being twelve of the former and eleven of the latter. In accordance with our usual custom we present to our readers brief analytical and critical notices of all the contributions to this volume, and have grouped together first, those which relate to the various branches of practical medicine, and, secondly, those which refer to surgery.

Art. I. *Select Clinical Cases, including cases of Labio-Glosso-Laryngeal Paralysis; Exophthalmic Goitre; Arterial Pyœmia; General Chronic Arteritis; Saturnine Gout*, by SAMUEL WILKS, M. D.—*Labio-glosso-laryngeal paralysis* affects, as the name implies, the lips, mouth, tongue and larynx, and, therefore, as might be supposed, the functions of eating, swallowing and talking are much interfered with. The nerves known as the seventh, eighth and ninth are in part paralyzed. The following are said to be some of the phenomena presented by this affection: loss of expression, from partial paralysis of the facial nerves; loss of the power of utterance, from paralysis of the muscles not only of the face and tongue, but also of the larynx; difficulty of eating, from the fact that the food collects between the cheeks and gums; inability to swallow, or to retain the saliva; and absence of sensibility of both the velum and larynx. None of the muscles concerned in respiration are paralyzed.

Dr. Wilks, in explanation of this peculiar paralysis, says that "it has long been considered that there is a region in the medulla which may be called the respiratory tract, a region to which branches of all the nerves engaged in the respiratory process may owe their origin; in like manner it would appear that as a large number of parts are engaged in the act of talking, so the nerves supplying them must be stimulated from a common centre, and thus the explanation how so complex a function should suddenly cease from lesion of one small spot." Some observations of Mr. Lockhart Clarke go far towards proving that the above hypothesis is correct; for he has demonstrated that there is a close anatomical connection between the nuclei of the hypoglossal, vagus, spinal accessory, facial and trigeminal nerves, and it is well known that these nerves send branches to all the parts used in speaking. Five cases of this form of paralysis are reported. It sometimes accompanies hemiplegia, and, occasionally, progressive locomotor ataxia.

Three cases of exophthalmic goitre are next reported; one is of unusual interest from the fact that there was a post-mortem examination. In discussing the nature of this disease Dr. Wilks maintains that it is not likely to be due either to paralysis, or to excessive stimulation of the sympathetic, for in one case the heart's action would be diminished, and in the other the calibre of the vessels of the head and neck would be diminished. In the fatal case the cervical sympathetic and the ganglia were carefully examined. To the naked eye the only change to be discovered was an excessive development of fibrous tissue, and nothing further seems to have been detected by Dr. Moxon, who made a microscopical examination, for he tells us that "the microscopic character of the ganglia, like the macroscopic, only gave us, as signs of disease, an apparent excess of fibrous tissues in the structure of the ganglionic tissue, with an apparent enlargement of the capillary vessels. On the other hand, against this we find the natural minute elements of the ganglion to have a healthy appearance."

A plate representing the appearance of this patient accompanies this paper.

Arterial pyæmia, Dr. Wilks regards as a frequent accompaniment of chronic disease of the heart; the symptoms are, however, either entirely overshadowed by the more severe ones attendant on valvular disorder, or, if observed, thought to be dependent upon rheumatism. It may exist in cases in which there is no history of a primary heart affection, or it and endocarditis may be set up at the same time and by the same influences. It should be suspected wherever there are obscure febrile conditions, especially when these are accompanied by rigors and by a gradual increase in size of the liver and spleen.

Dr. Wilks, while fully acknowledging that valvular vegetations are the most frequent causes of obstruction of the arteries, says that there are many cases in which Rokitansky's view that the fibrin is directly deposited from the blood must be accepted, and others in which we can only suppose that the deposit in the vessels and that upon the valve must have taken place at the same time. These latter present many of the symptoms of venous pyæmia, the only difference being that the source of infection is in the interior of the body.

A case of general *chronic arteritis* is also reported. In this case some of the principal arteries in the body were so thickened and obstructed that their pulsations could only be felt with the greatest difficulty. The symptoms most complained of during life were severe pains in the limbs; these were sometimes so severe as to extort cries from the patient, and were only relieved by the subcutaneous injection of morphia. Other symptoms were excessive feebleness and great frequency of the pulse, great emaciation, feelings of numbness in the legs, tumultuous action of the heart, and slight albuminuria.

The association of *gout with plumbism* is so frequent that Dr. Wilks is inclined to think that either individuals with a gouty diathesis are more susceptible to the action of lead, or, that on the other hand, the action of lead may set up those mal-assimilations which result in the production of an excess of uric acid. Certain it is that we see in cases of what he designates as saturnine gout the same pathological changes in various tissues of the body as occur in pure gout, for instance—the degeneration of the bloodvessels and the granular contraction of the kidneys. The direct effects of lead upon the system are moreover not the same as those seen in cases where gout has supervened.

Art. VII. *On the Processes for Detecting Blood in Medico-Legal Cases*, by Alfred S. Taylor, M. D., F. R. S.—In an article in the 13th volume of these Reports, which was noticed in the October number of this Journal for 1868, Dr. Taylor describes Van Deen's process for the detection of blood in medico-legal cases, by the employment of the peroxide of hydrogen and the freshly precipitated resin of guaiac. In the experiments there detailed the watery solution of the peroxide of hydrogen was used, but Dr. Taylor has since found so much difficulty in obtaining pure aqueous solutions of uniform strength and of good keeping qualities, from the constant presence of either sulphuric or hydrochloric acid, both of which affect the precipitated resin of guaiac, that he has lately used the ethereal solution sold under the name of ozonic ether.

To this paper is added an article "On the Detection of Blood by Means of the Spectrum-Microscope. By H. C. Sorby, F. R. S., &c. &c."

Art. VIII. *On "Tetany," or Remittent Tetanus*, by W. Moxon, M. D.—In the case reported by Dr. Moxon, a boy of 3 years of age, feeble and rickety, was the subject of peculiar seizures, which seem to have come on with difficulty of breathing, the breath being, to use the mother's words, "heavy, hard and short, as if he had inflammation on the chest." A little later the backs of the hands were observed to be swollen, and the hands and feet to be cramped; the thumbs being turned in across the palms and the forearms strongly pronated. The feet were generally similarly affected, the great toes flexed and adducted, and the other toes flexed and gathered towards them.

Dr. Moxon says this affection is undescribed in any of the works of the systematic writers on diseases of children. This is an error. A very good account of it is given by Messrs. Rilliet and Barthez, under the title "Contracture (Convulsion externe tonique)."

Art. X. *Remarks on Certain Cutaneous Affections; with Cases. Scleriasis; Ichthyosis; Pemphigus; Rhinoderma; Lichen Planus; Molluscum Contagiosum; Tinea Favus*, by C. Hilton Fagge, M. D.—It will be remembered that Dr. Fagge contributed to the 13th volume of *Guy's Hospital Reports* a paper on "Keloid, Scleriasis, Morphœa and some Allied Affections," which was noticed in the number of this Journal for October, 1868. It was there shown that the disease generally known as the Keloid of Addison is intimately allied to a complaint presenting some different characters, and first described by Thirial under the name of Sclérème des adultes, and more recently called Scleroma, Scleriasis or Sclerodermia. The keloid of Addison, Dr. Fagge looks upon as a chronic form of the disease, of which scleriasis is the acute. But since the duration of even the more transitory variety is very much longer than that of any disease ordinarily termed acute, he proposes to designate the two forms respectively as diffuse and circumscribed.

Dr. Fagge also reports a case of "*Diffuse Primary Carcinoma of the Skin*," which presents, he thinks, a striking resemblance to a case reported by Dr. V. Rasmussen, in the *Edinburgh Medical Journal*, for September and October, 1867, and regarded by him as a case of scleriasis.

Several cases of *ichthyosis* are reported, and some new facts in regard to this curious disease are to be found in this communication. Dr. Fagge dissents from Dr. Wilson's opinion that the form of ichthyosis which the latter calls xeroderma saurioides consists merely in "an altered state of the sebiparous function, and an accumulation of the sebaceous substance on the skin in the form of dark gray or greenish scales or spines," as he believes that in any disease to which the name of ichthyosis would be given at the present day, an alteration and hypertrophy of the papillæ of the corium and their epithelium will be found. A wood-cut is introduced to show the superposition of the epidermic scales, one above the other. Another wood-cut shows several hairs, with tufted extremities, lying side by side, but having their roots at different levels, all entangled in the epidermic scales. This arrangement Dr. Fagge regards as almost demonstrative proof that ichthyosis does not consist in an increased production of the epidermis, but rather in an abnormal adhesiveness of the epidermic scales, which enables them to resist the influences which ordinarily remove the superficial layers of the cuticle, and to remain heaped the one over the other, for it can hardly be doubted that all these hairs, embalmed as it were in a single ichthyotic scale, have been formed within the same follicle, and have been successively shed from it. From the cases reported, we learn that this cutaneous disease is often complicated with other eruptions, such as eczema, impetigo, and pemphigus, and that the subjects of it are occasionally stunted and deformed, from which Dr. Fagge argues its constitutional nature.

Several cases are referred to to show that Devergie's statement that "wherever a bleb appears without external cause the patient has pemphigus" is one that cannot be accepted without limitation. In one of the cases bullæ appeared on the skin of a woman exhausted by nursing, while their frequent appearance after injuries of nerve trunks, in urticaria, erythema nodosum, eczema, scabies, and in the anæsthetic form of elephantiasis Græcorum, is of course adverted to. A very interesting history of a case of pemphigus serpiginosus is included in the paper.

Under the name of *Rhinoderma* Dr. Fagge describes a disease, called by Devergie pityriasis pilaris, in which the skin is rendered rough like a rasp by the presence of horny accumulations in the mouths of the hair follicles.

The name of *Lichen planus* was given by Mr. Erasmus Wilson to an eruption of broad, flat papules of a crimson red colour, and having a smooth, shining, "glazed," or "burnished" surface. The papules are very little raised above the level of the skin, and are at first distinct, but after a time, as they increase in number, cohere together. Dr. Fagge has found the disease to be attended with a good deal of irritation of the skin, although the contrary is asserted to be the case by Mr. Wilson. Five cases are reported.

Molluscum contagiosum is referred to, partly for the purpose of introducing a plate taken from a drawing by Mr. Davies-Colley, of sections of a tumour removed from a child afflicted with this disease, and partly to record the fact that all Dr. Fagge's attempts to propagate this disease by inoculation had failed. In view, however, of the frequency with which this disease is found in different members of the same family, Dr. Fagge does not regard the failure of his experiments as proof that the disease is not contagious.

Tinea Favus forms the concluding subject of this paper. In all the cases, of which notes are given, epilation was practised, and with favourable results. A plate is appended to show that frequently in this disease a number of tubes may be contained within the hairs themselves, and it is to their presence that Dr. Fagge attributes the persistence and reappearance of the disease after all the crusts have been removed from the head by parasiticide lotions.

Art. XI. *Thermometric Observations in Clinical Medicine*, by J. F. GOODHART, House Physician.—This, although a very valuable paper, and one which shows much care in its preparation, does not admit of sufficient condensation to bring it within our limits. We can, therefore, only commend it to such of our readers as may be interested in the use of the thermometer in the study of disease. The diseases in which observations were made, are scarlatina, typhoid and typhus fevers, diphtheria, measles, febricula, syphilis, ague, relapsing fever, erythema nodosum, acute rheumatism, tubercular meningitis, tuberculosis, pleurisy, acute Bright's disease, and leucocythæmia. The action of medicine in causing a reduction of temperature is also recorded. From the observations which he has made, Dr. Goodhart is inclined to think that the rise in temperature in the early stage of typhoid fever is not a progressive one, as has been maintained by some German observers ; on the contrary, he believes that the thermometer will often fail to distinguish this from simple continued fever. A temperature of 107° Fahr. occurring in any other diseases than relapsing or intermittent fever he regards as invariably indicative of a fatal result.

In regard to the influence of the act of dying on the temperature, Mr. Goodhart says :—

1st. "That except in isolated instances, and these cases of long-standing disease with emaciation, the temperature is not materially lowered at the time of death.

2d. "That while a rapid rise of temperature is often observed, it occurs not in such cases as those of death from hemorrhage, accidents, collapse, etc., but rather in patients who are already so seriously ill that a difficulty with regard to them could scarcely arise."

Art. XII. *Cases Illustrating the Influence of Opium and some of its Constituent Principles in Controlling the Elimination of Sugar in Diabetes*, by F. W. PAVY, M.D., F. R. S.—Further experience has confirmed the favourable opinion formed by Dr. Pavy in regard to the power which opium and some of its preparations possess in controlling the elimination of sugar in diabetes. This paper contains the report of eleven cases so treated, and in all great improvement was effected. In some cases cure is even said to have taken place, but the latter is a statement which is contradicted by the fact that among the patients whose histories are detailed is that of the woman whose case was reported in vol. ii. of the *Clinical Society's Proceedings*, and noticed in the last number of this Journal, and who, notwithstanding that a complete recovery was supposed to have taken place, returned to the hospital with a recurrence of the diabetic condition of the urine. Of the preparations of opium, codeia and morphia appear to be most efficient and to give rise to the fewest unpleasant symptoms. On the other hand, narceia and narcotina appear to be inert, as far as concerns the possession of any power to restrain the excretion of sugar. Codeia has the great advantage over opium and morphia that it does not exert the same narcotic and constipating effects or diminish the appetite to the same extent. In one case, the case above alluded to as having been already noticed in this Journal, codeia sufficed to cause a disappearance of the sugar from the urine without a restriction of the diet. The dose of codeia is at first half a grain three times daily, and afterwards gradually increased. In some of Dr.

Pavy's cases the dose was increased gradually until ten grains three times a day were administered.

Art. XIV. *On the Necessity for a Clinical Nomenclature of Disease*, by W. Moxon, M.D.—This paper consists principally of a full criticism of the nomenclature of disease recently adopted by the Royal College of Physicians. As the latter has already been noticed in this Journal, it is not necessary to allude further to Dr. Moxon's remarks than to say that he thinks we ought "to have the names of diseases made to refer primarily and chiefly to their clinical nature; and secondly, to have an arrangement introduced such that the nature of a disease may be accurately defined apart from its anatomical results; and thirdly and chiefly, that the nomenclature shall correspond to the actual clinical grouping of the symptoms of disease, rather than to the anatomical or physiological divisions of the body and its functions."

Art. XV. *Cases of Successful Version after Failure of the Forceps*, by J. Braxton Hicks, M.D., F. R. S.—Five cases are reported by Dr. Hicks, in which, after the failure of the forceps, delivery was accomplished by turning. In another case, version was performed with complete success in the second labour, although in the first it had been thought necessary to have recourse to craniotomy. Dr. Hicks admits that it is quite possible that in most of these cases the use of an instrument of greater compressing power than is generally used in England might have rendered version unnecessary, but thinks that much more damage would be inflicted upon the tissues both of the mother and child; he never having seen a case in which there was any evidence of injury to the mother by traction after turning. The use of chloroform has, moreover, removed the greatest objection to turning—the pressure to which the funis may be subjected during delivery, as a thorough condition of relaxation of the uterus may be maintained during the operation.

Art. XVI. *Clinical Notes*, by S. O. Habershon, M.D.—Inflammation of the diaphragmatic pleura presents symptoms which differ very considerably from those usually seen in pleurisy. The pain is agonizing, and the patient dreads the necessary movement of inspiration. His expression is one of extreme suffering and distress, his countenance becomes lurid, and apnœa is threatened because he dare not breathe. If the right side be the one affected, the symptoms are often mistaken for those of disease of the liver; if the left side, they frequently give rise to the suspicion that the spleen, stomach, or heart is diseased. The circumstance that where the diaphragmatic surface is exclusively inflamed, no friction sound is heard, and the other physical signs are wanting, of course increases the difficulty of diagnosis very materially. The following are mentioned as some of the most frequent of the peculiarities presented by diaphragmatic pleurisy: The suddenness of the pain and its great intensity; the severity of the dyspnœa; the comparative absence of the physical signs, as well as of febrile excitement; the presence of pain in the shoulder; irritability of the stomach if the left, and jaundice if the right side be affected. Resolution of the inflammation is the most frequent termination of the disease, but in some cases effusion, and in others consolidation of the lung results. The pain in the right shoulder and the irritability of the stomach are explained by the nervous connections between those parts and the diaphragm. "The diaphragm receives the phrenic nerve upon its upper part; the nerve spreads out in a web-like manner on the lower aspect; the phrenic is in close relation in the neck with the nerves which reach the shoulder, and below, it is brought into direct connection with the nervous supply of the liver on the one side, and with the vasomotor filaments to the stomach on the other." Dr. Habershon tells us that in some cases it will be necessary to exercise care in the diagnosis, for intense pain in the side may be due to the neuralgia which precedes herpes zoster, or it may arise from disease of the spine, from local tumours or abscesses, from periostitis or perichondritis, from neuralgia dependent upon uterine disease, or from a direct injury, as a fractured rib.

Several cases of *hæmatemesis* from various causes are next given, and these are followed by some remarks on the internal administration of carbolic acid. After alluding to the employment of carbolic acid in diseases of the mouth, throat, and bronchi, Dr. Habershon calls attention to its use in many functional and organic diseases of the stomach in which fermentative action takes place, whether dependent upon the development of cryptogams or simply chemical in its nature. In any case, however, in which there is evidence of inflammatory disease of the stomach, the acid is contraindicated. On the other hand, in cases where the tongue is pale and flabby, even if furred, and the general symptoms are those of weakness, the acid will be found of service, especially if at the same time there is an absence of pain and tenderness except when distension occurs from the evolution of gases due to fermentation. It may be used even when gastric ulcers are known to exist, if the active stage of ulceration be passed.

Another indication for the employment of the remedy is flatulence, especially when the discharges from the bowels are mixed with large quantities of mucus. If diarrhœa coexist with flatulence, it is well to combine with it lime or an astringent, as gallic acid; if, on the contrary, constipation be the complication, the following formula will be of service: ℞.—Acid. carbolic., guaiac, resin, āā gr. j; pulv. rhei, gr. ij to gr. iij once or twice a day after meals.

The paper concludes with the report of two cases of injury to the head, and some remarks on that subject.

Art. XVIII. *On some Affections of the Nails*, by C. HILTON FAGGE, M.D.—The fact that the nails may become diseased, either in conjunction with the skin or independently of it, is perhaps not so generally and thoroughly understood as it should be. In this paper will be found cases of disease of the nails dependent upon parasites, upon secondary syphilis, or coexisting with the more ordinary forms of skin diseases. In one case an affection of the finger-nails occurred in a person who was suffering, it was believed, from Elephantiasis Græcorum.

Art. XX. *Numerical Analysis of the Patients treated in Guy's Hospital from* 1861 *to* 1868, by J. C. STEELE, M.D.—This analysis is similar to that which appeared in the journal of the *Statistical Society*, and which embraced the septennial period ending 31st December, 1861. From this analysis we learn that the hospital accommodation of Guy's consists of 572 beds, of which 344 are reserved for surgical cases, 216 for medical, and 12 are employed mainly for private cases. We regret that our limits do not permit us to give an abstract of this very valuable paper, which we would recommend all those specially interested in statistical inquiry to read. It is provided with fifteen tables. J. H. H.

We shall now invite the attention of our readers to those papers which are specially interesting to surgical practitioners; the first in order is

Art. II. *Statistics of Subclavian Aneurism*, by ALFRED POLAND.—This is an elaborate and very valuable paper, and was originally designed as an appendix to the author's "Case of Fusiform and Tubular Aneurism of the Subclavian Artery," which appeared in the last volume (vol. lii.) of the *Medico-Chirurgical Transactions*, and was noticed in the number of this Journal for April, 1870, page 472.

Mr. Poland has collected no less than 125 cases, of which, however, a few are not available for statistical purposes. He has carefully gone over the cases tabulated by Koch, and has been enabled to rectify several errors in the German writer's work; hence the present paper may be justly considered as the most important contribution yet made to the literature of subclavian aneurism. Mr. Poland's first table, which alone occupies twenty-eight pages of the "Reports," gives a synoptical view of the whole number of cases, classified according to the mode of treatment ultimately resorted to in each instance; and his second (of fourteen pages) shows the condition of the artery, of the sac and surrounding parts, and of the heart and arteries generally, in those cases in which a record as to these points has been obtained. Following these elaborate tables are various statistical deductions of great interest to surgeons: thus we find that in nearly three-fourths of the whole number of cases, the right side of the body was affected, 85 cases involving the right side exclusively, 28 the left, 2 both sides, and in 5 cases the side not being stated; the affection is much more frequent among men than among women, 100 cases occurring in the male sex against only 11 in the female. The *ages* of the males are recorded in 79 cases; of these in 24 the patients were under 40 years, in 28 from 40 to 49, in 17 from 50 to 59, and in ten over 60 years. Of 121 cases recorded, no less than 67 occurred in England, Scotland or Ireland, our own country furnishing 18, France 16, Germany 6, Russia 5, Italy 4, etc. etc. *Occupation* does not appear to exert any predisposing influence in causing the affection: "The occupation appears to be neither a predisposing nor an exciting cause, and this tends to show that the cause is much more general, viz., injury to which all are liable—or disease of the arterial system, to which all are equally prone under particular morbid circumstances. Few of the sufferers attributed the disease to their occupation, but rather referred it to some antecedent injury or blow, or to some affection, such as rheumatism, syphilis, etc." The *cause* of subclavian aneurism appears to be in more than half the number of cases an idiopathic change in the structural condition of the artery: in about one-third of the whole number of cases there was a history of injury, which was sometimes the only cause, and sometimes merely a concomitant with the previously existing structural change of the parts involved. The following table, which we quote, exhibits the facts bearing upon this point in a very succinct manner.

"*Résumé of Causes.*

	A.—Direct Proof.			B.—Assumed or Conjectural.				
Assignable Cause.	Atheroma.	Dilatation.	Healthy.	Post mortem, but vessel not examined.	No post-mortem.	Recovery.	Uncertain.	Total.
Spontaneous . . .	17	5	...	7	3	15	...	47
Traumatic	13	3	4	10	3	9	1	43
None stated . . .	...	6	...	2	8	7	1	24
Specimens	3	...	...	...	...	...	4	7
Total	33	14	4	19	14	31	6	121

"Thus in 33 there were distinct proofs of atheroma.

14 the artery or aorta was dilated and the disease cannot be called traumatic.

25 the aneurism was acknowledged to be spontaneous; no evidence — to the contrary.

72 cases, all fairly to be set down to idiopathic causes."

The *situation* of the aneurism is definitely stated in 98 cases; the whole course of the artery from origin to axilla was involved in 13, the first portion alone in 9, the first portion and innominate in 3, the first portion and carotid in 1, the second and third portions in 9, the second and third portions and the axillary in 1, the third portion alone in 25, the third portion and axillary in 26, and the axillary and confines of subclavian at first rib in 11.

The *size* of the aneurism varies greatly in different cases; various terms of comparison are used, ranging from a "small bean" or a "pigeon's egg," up to a "child's head" or a "forty-eight pound shot."

The most frequent *symptoms* are alteration of pulse (generally diminution) on affected side, pain, tingling, numbness, or anæsthesia; loss of motor power (occasionally accompanied with spasm); diminished temperature, with œdema; a sense of suffocation, dyspnœa, dysphagia, hæmoptysis, giddiness and fainting, insomnia (in one case drowsiness), contracted pupil, increased carotid pulsation (absence of pulsation in one case), turgid state of superficial veins, clubbed fingers, etc. Epilepsy occurred in one instance.

The affections which may complicate the *diagnosis* are, chiefly, (1) glandular and other tumors, (2) chronic abscess, (3) exostosis of the first rib, (4) neuroma of the brachial plexus, and (5) aneurisms of neighbouring vessels.

Mr. Poland's remarks upon "*the natural course, progress, and termination of subclavian aneurisms*," bring out one fact that we cannot but think extremely significant: this is that of 49 cases in which no active surgical treatment was employed, no less than 14 underwent a spontaneous cure; in 14 more the cause of death is not known or is known to have been some independent affection; while the aneurism itself certainly caused death in only 21.

The duration of life in fatal cases under different modes of treatment is illustrated by several tables, which show, as might be expected, that death, in fatal cases, is more rapid after the adoption of active surgical measures than after expectancy; this is, however, no argument against operation, for the risk of hastened death is, of course, one which is necessarily incurred in the practice of almost all operative procedures.

Mr. Poland reserves his *Statistics and Remarks on the Varied Methods of Treating Subclavian Aneurism*, for a future volume of the Reports, having already occupied a large portion (110 pages) of this, an act which, in our judgment, requires no apology, for we cannot conceive that the space could be better filled.

Art. III. is called *Some Remarks on Syphilis and Chancre*, by J. Cooper Forster.—This is a most sensible and practical paper, and we gladly commend it to the attention of all our readers: there is only one point which we are disposed to criticize, and that is the author's application of the term *chancre* to the non-infecting or simple sore, which we usually recognize under the name of *chancroid*. The word *chancre* is, we think, so firmly fixed in the minds of the profession as indicative of the initial lesion of syphilis, that it is futile to attempt now to invest it with a different meaning: better retain it with its present signification, and invent some new name (and we confess that neither chancroid nor simple sore is quite satisfactory) for the common, non-infecting, venereal, but not syphilitic ulcer.

From what we have said it will be perceived that Mr. Forster is, in the language of the day, a *dualist;* it is, indeed, to our mind, one of the most cheering signs of the time, that all practical and reasoning surgeons are gradually approaching uniformity of faith upon this topic: it will not, we suspect, be a great many years before the only remaining *unicists* will be, either those who cannot investigate the subject for themselves, or those who, of choice, blindly follow the doctrines of their predecessors, reverencing more the *idola* of authority than the instructions of nature.

Though clear in his faith, Mr. Forster (like every honest dualist) confesses the occasional impossibility of distinguishing the infecting from the non-infecting sore: hence he recommends early cauterization with nitric acid and lunar caustic in all doubtful cases: "Supposing the sore to be true syphilis, or about to become hard, no harm is done; and if it be a chancre or local soft sore only, it most assuredly will be thus destroyed, and a healthy, granulating surface will arise, which will quickly heal." With regard to constitutional treatment Mr. Forster says, "If I am called upon to see a sore that has existed some weeks, presenting the typical manifestation of hardness, and particularly if there exist any enlarged glands in the groin, I consider the application of an escharotic to the sore useless; I generally, under these circumstances, order small doses of mercury at once, either by fumigation, by inunction, or internally, in the shape of Pil. Hyd. Should, however, there be the slightest doubt in my mind of the true syphilitic character of the sore, I defer the remedy until the eruption appears, believing that I should do but little good by hastening its adoption." We are somewhat disposed to doubt the possibility of hastening or modifying the natural evolution of syphilis by the use of mercury during the primary stage; if, however, the "*pleiade ganglionaire*" be well marked, and if the patient (as often happens) be very anxious for constitutional treatment, we believe the safest preparation of mercury to be the protiodide, given in small doses, and well guarded with opium.

We observe that Mr. Forster condemns the application of caustics to phagedænic sores, relying upon frequent washings and the use of opium externally, and upon iron and opium "given internally in no sparing doses."

Art. IV. *Contributions to the Physiology of Binocular Vision*, by Joseph

Towne.—This, which is illustrated with two lithographic plates, is another of Mr. Towne's valuable papers on the physiology of vision, and is characterized by the same closeness of reasoning and clearness of description which marked its predecessors; it is not, however, a paper of which we can very well furnish an abstract, and as there is yet before us much of surgical interest in the present volume of "Reports," we will pass on to

Art. V. *Further Observations on Catarrh of the Tympanum*, by James Hinton.—This is a sequel to a paper published by Mr. Hinton in the last volume of the "Reports" [see number of this Journal for July, 1869, page 192], and gives additional proof of the benefits to be derived from incisions of the membrana tympani, and the evacuation of confined mucus. "Among the signs of the presence of mucus in the tympanum, a very characteristic one—though by no means constant, and not in itself to be taken as decisive—is the patient's own feeling of something being present in the ear, and moving as the head is moved. In some cases this feeling is so strong that it gives rise to the habit of giving the head a peculiar shake, as if to shake something in the ear out of the way, especially during the attempt to listen. Another peculiarity of hearing, which some time ago attracted my attention, but which I then failed to comprehend, I believe has a similar explanation, viz., the hearing better when the head is held down on the affected side. The difference is sometimes very marked, and I have recently observed it to exist with other palpable evidences of retained secretion." After incision of the membrana tympani, the accumulated mucus will sometimes project through the opening and may then be drawn out with forceps; in other cases it is necessary to resort to syringing with mild alkaline solutions "not by means of the Eustachian catheter, but in the opposite direction, applying the syringe to the meatus. The nozzle being well covered with elastic tubing, so as pretty closely to fit, without hurting, the meatus, the stream may be sent safely, even with considerable force, *provided the Eustachian tube be open*, and will flow freely through it, escaping by the nostril, the head, of course, being bent well forward. In this way masses of old secretion may be removed from the tympanic cavity in almost every case, and in some cases in quantities almost incredibly large. The cleansing by this means should be repeated frequently—every second or third day is best—until all appearance of any accumulation cease, and then a weak solution of sulphate of zinc (gr. ij–x ad ℥j) may be substituted and used in the same way." Obstruction of the Eustachian tube is a not infrequent complication of tympanic accumulation, and is usually remediable by inflation during swallowing, and by syringing through the tympanum, as above directed. In some cases, however, more active measures are required. "The most efficacious means for this end are, besides syringing solutions of the alkalies, or of nitrate of silver, or sulphate of zinc into the tube, the introduction of bougies of laminaria, or of very small elastic tubes passed through the Eustachian catheter, and along the tube as far as possible; air or fluids being then injected through them, so as to exert a direct pressure upon the constricted portion." Three cases are detailed in which recovery of hearing followed the treatment by incision, one in which only temporary improvement was obtained, and one which was not at all benefitted.

Art. VI. *Cases Illustrating the Diseases of the Upper and Lower Jaws, with Remarks*, by Thomas Bryant.—This valuable paper contains a record of forty-six cases, each of which is of interest to practical surgeons. The paper is divided into three parts, the first treating of necrosis of the bones entering into the formation of the jaws, the second of cystic tumours, and the third of solid tumours connected with the jaws. With regard to the treatment of necrosis, Mr. Bryant says, "When dead bone can be made out to exist, either in the upper or lower jaw, there is but one form of practice which ought to be entertained, and that is its removal. It should be removed, also, with as little disturbance to the soft parts or to the new bone-forming tissues, such as the periosteum, as possible, and it should likewise be removed from the mouth. When this latter practice is impossible or impolitic, from any cause, the surgeon should take good care that his incisions are made where they will be subsequently little seen. . . . In necrosis of the upper jaw the bone can always probably be removed by means of incisions made *beneath* the cheek; an incision *through* the cheek never seems necessary. In necrosis of the lower jaw, where incisions through the integument are demanded, they should be made below its lower border. When the bone is fixed, or, rather, before it has been thrown off from its attachments, any operative interference must be condemned. . . . Under these circumstances the surgeon should content himself with seeing that all pent-up pus has free vent, by making free incisions through the gum; that the patient's mouth is kept as clean as possible by frequent washings, and that his general condition is kept up by means of tonic medicines and nutritious diet." With regard to the treatment of cystic disease of the jaws, our author's remarks are equally judicious: "In every case in which the faintest suspicion exists of the cystic nature of the growth, operative interference should be confined to an exploratory operation, before the graver one of the extirpation of the growth is entertained. . . . In each of the cases which have been recorded, it will have been observed that the treatment was very simple, for a free incision into the cyst was made in all; the subsequent cure being effected by the production of inflammation of the cyst-wall by means of plugging its cavity with lint; although in the case of true dentigerous cyst the removal of the tooth through a free opening into the antrum was likewise needed. The opening in all the cases of disease of the upper jaw was made through the wall of the cyst, beneath the cheek, and not by perforating the socket of the first molar tooth after its removal, as is often advised. The opening at this spot can be made more easily, and may be made larger, and is more under observation. It should always be a free one. When the cyst is large, a piece of bone may be taken away, as was done in the instance quoted of dentigerous cyst." Mr. Bryant's paper is illustrated with four lithographic plates, and several wood-cuts.

Art. IX. *On the Torsion of Arteries: a Description of some Models made to Illustrate the Effects of Torsion; with Remarks*, by THOMAS BRYANT.—This short paper is adorned with a beautiful coloured lithographic plate representing several models executed by Mr. Towne, the well-known modeller of Guy's Hospital. They show at a glance, and better than can be done by any verbal description, the *modus operandi* by which torsion acts in effecting the closure of arteries. By the process of torsion the inner coats are divided, and in the majority of cases turned inwards, these incurved coats forming, in the most perfect examples, complete valves, not unlike the semilunar valves of the heart; in other cases "the valvular incurvation of the divided inner coats is not so perfect as to prevent the passage of a small portion of blood or injection with the first rush of fluid, although it is tolerably clear that the valve is subsequently rapidly closed with any increase or continuance of the injecting force. . . . In some cases this valvular incurvation of the inner coats is exchanged for a general splitting of the tissues, hemorrhage being prevented by the clotting of the blood between the irregular laminæ of the divided membrane and the twist of the external cellular coat." These models show the advantages of not twisting off the end of the vessel, for even when "the valve formed by the divided recurved inner coat proves to be perfect after the first rush of the blood current has taken place, the knot formed by the twisted external coat must prove a valuable support, and in doubtful cases, where an imperfect valve exists, it must be of still greater importance." When the inner coats are irregularly broken up, the presence of the twisted external coat is of value, "not only by forming an obstacle to the immediate escape of blood through the broken-up inner membrane, but by giving time to allow of complete coagulation of the blood which has been caught between the laminæ of the inner coats." Mr. Bryant's practical conclusions, from his experience in over one hundred cases, are:—

"That torsion may be safely applied to all arteries of the extremities, and to all those of the trunk which are in size less than or equal to the femoral. To the carotid and iliac vessels it has yet to be applied.

"That it is almost as applicable to diseased as to healthy vessels, the former requiring fewer rotations of the forceps than the latter.

"That in large healthy vessels, such as the femoral, the extremity should be twisted till resistance has been overcome, but no further—three, four, or five rotations of the forceps being, as a rule, all that is needed. These rotations should be made sharply.

"That in large atheromatous vessels the same rule should be applied, two or three rotations of the forceps generally sufficing.

"That in all small vessels torsion may be applied very freely, even to the separation of the end, although when evidence of disease exists it is better to proceed with more caution and not to twist off.

"That in every case where a large artery is twisted, it is advisable to allow a current of blood to flow into the vessel before the forceps are removed from its end. This caution not only tests the completeness of the act in all cases, but in doubtful ones facilitates the coagulation of the blood in the meshes of the broken-up inner membrane."

Art. XIII. *A New Method of Treating Gonorrhœa by Injections*, by Arthur E. Durham.—If Mr. Durham correctly represents the practice of the venereal wards of Guy's Hospital, we cannot wonder that he considers some improvement necessary in the treatment of gonorrhœa This disease, he tells us, though simply a local affection, is (in the male) "rarely amenable to purely local treatment. Copaiba, cubebs, oil of sandal-wood, and other medicines, administered internally, are as much in vogue as ever, if not more so." Drugs are administered "which are often very nauseons to the patient, and are notoriously liable to disorder the stomach, and more or less affect the general health. In some cases . . . these drugs cannot be tolerated in any form, and the gonorrhœa almost comes to be considered the lesser evil." Treatment by injections "very often, indeed, utterly fails to do any good beyond amusing the patient until the gonorrhœa has, as it were, worn itself out. . . . in very many instances the prescribed injections have been of little real benefit; . . . in some instances positive mischief has been done; and . . . in comparatively few cases only have good results been manifestly effected." Mr. Durham's "new method" consists in the use of a slender tube of vulcanite, terminated at one extremity by an elongated bulb, and at the other connected by means of an elastic tube with an ordinary hand-ball enema syringe. "At the junction of the slender tube with the commencement of the bulbous expansion is a ring of minute perforations, which are made in such direction, that when the syringe is in action, the fine streams of fluid ejected through them pass backwards and upwards . . . and not straight onwards." The urethral tube is three to three and a half inches long, and of the calibre of a No. 3 or No. 4 catheter, the bulb being olive-shaped, three-eighths of an inch long, and at its largest circumference of the calibre of a No. 7, 8, or 9 catheter. A somewhat similar instrument was devised many years ago by Mr. Hilton; but it seems to us that in cases where it is necessary to resort to deep injections, Dr. Addinell Hewson's ingenious application of Thudichum's douche promises better than any other method. (See *Penna. Hosp. Reports*, vol. ii. p. 255, and No. of this Journal for July, 1869, p. 151.)

Art. XVII. *A Description of the Appearances of the Human Eye in Health and Disease as seen by the Ophthalmoscope. Fourth Series.—Glaucoma*, by C. Bader.—This short paper, like those previously published by Mr. Bader under the same title, is accompanied by beautifully coloured plates, on this occasion two in number, containing nine figures illustrating the ophthalmoscopic appearances in cases of chronic and of acute glaucoma. The following sentences may assist some of our readers in recognizing the condition known as "*cupping*" of the optic disk: "The course of the bloodvessels is altered; those on their way to and from the retina have to pass through the optic disk. The following alterations in their course are characteristic of the cupped condition of the optic disk, and to the less experienced ophthalmoscopist are the only reliable signs of the existence of a cupped optic disk. The greater number of vessels appears displaced towards the side of the cup, which lies nearest the yellow spot. The veins of the retina have to pass round the margin of the cup to reach their point of exit from the disk. If, as in advanced glaucoma, the margin of the cup is very prominent, a portion of the veins is hidden from view by that margin. The veins in the cup appear displaced compared with their corresponding portions in the retina; they do not seem to be the prolongations of the latter. This deceptive appearance is increased by the veins in the cup appearing much smaller than those in the retina; some can barely be traced in the optic disk, others are lost sight of altogether. Even in the early stages of glaucoma we may see the trunks of the retinal vessels in the middle of the optic disk, instead of advancing straight forwards, to be bent towards the side of the disk nearest the yellow spot."

Art. XIX. *The Results of Amputations of Portions of the Limbs on account of Injuries and Diseases, especially in reference to the Causes of the Mortality after such Operations*, by John Birkett.—In this valuable statistical paper are recorded 175 amputations in the continuity of limbs performed upon 171 patients, either by Mr. Birkett himself or under his immediate supervision, the cases having occurred during a period of seventeen years. There were four *double amputations*, three proving fatal, and the fourth (an amputation of the left thigh and arm in the case of a "hardy, healthy, and temperate labourer, twenty years old") eventually terminating in recovery.

Of the 167 cases of single amputations, nearly one-third ended in death, though in a large number of cases the fatal result was directly due to the traumatic lesion for which the operation was performed, the patients being, as Mr. Birkett puts it, "killed" by the effects of the injury. For the convenience of our readers we have compiled the following table, giving the numerical results of Mr. Birkett's 167 cases.

Seat of Amputation.	Primary.			Secondary.			For Disease.			Aggregate.		
	Cured.	Died.	Total.	Cured.	Died.	Total.	Cured.	Died.	Total.	Cured.	Died.	Total.
Thigh	4	5	9	2	8	10	44	10	54	50	23	73
Leg	12	6	18	4	6	10	11	4	15	27	16	43
Arm	7	6	13	5	5	10	2	1	3	14	12	26
Forearm . . .	12	1	13	1	...	1	10	1	11	23	2	25
Total . . .	35	18	53	12	19	31	67	16	83	114	53	167

It will be seen that the figures in this table fully bear out the established doctrine that the gravity of amputation increases directly with the proximity to the trunk of the point of operation, the apparent exception in the case of the leg and thigh being due to the fact that in the latter situation the amputations *for disease* greatly preponderate, these being, of course, the most favourable cases. Another point of interest is the greater mortality after *secondary* than after *primary* amputations for traumatic causes; a fact which has long been recognized in military surgery, but which is not acknowledged as true in civil practice by many writers, among others by no less eminent a surgeon than Mr. Erichsen (*Science and Art of Surgery*, last Am. edit., p. 62). We may add that from a careful tabulation of over 1800 cases, derived from a large number of civil sources, we are convinced that the distinguished Professor of University College is in error as to this matter, and that in civil, as in military surgery, primary is more successful than secondary amputation.

Mr. Birkett discusses in a very satisfactory manner the *causes of death in fatal cases* after amputation, and comes to the following conclusion, which seems to us amply warranted by his premises: "From the above evidence we may conclude that a large proportion of the patients submitted to amputation, when inmates of a metropolitan hospital, are the subjects of more or less advanced chronic disease of the thoracic or abdominal viscera. It is true that the immediate cause of death may be an acute inflammatory attack of a vital organ, to which it is reasonable to suppose diseased persons may be more prone than healthy ones, but the facts show, at the same time, that 'the chances of death after operations appear to depend almost entirely upon the previous state of each patient's constitution,' as stated by Dr. Chevers." (See an able paper by Dr. Norman Chevers on the causes of death after injuries and surgical operations, published in *Guy's Hospital Reports*, 2d series, vol. i. (1843), pp. 78–102.)

In closing this, the thirtieth volume of Reports issued by the Medical and Surgical Staff of Guy's Hospital, we cannot refrain from again expressing our high appreciation of the unequalled series which it so worthily prolongs. Oldest and best of all the Hospital Reports, the "Guy's" need fear no rival: long may it continue, as it has for more than the third of a century, to send forth from time to time its noble contributions to practical medicine and surgery, an honour to its own country, and a positive boon to the cause of science throughout the whole civilized world. J. A., Jr.

Art. XXII.—*St. George's Hospital Reports.* Edited by John W. Ogle, M.D., F.R.C.P., and Timothy Holmes, F.R.C.S. Vol. IV., 1869. 8vo. pp. viii., 354. London: John Churchill and Sons.

This volume contains twenty-one papers, of which eleven are medical, and for the most part are of unquestionable value and interest. We shall first notice these, and afterwards the articles specially pertaining to surgery.

Of the medical papers the first is:—

Art. I. *On the Variations of the Acidity of the Urine that occur when Vegetable and Mineral Acids are used*, by H. Bence Jones, Esq.—The opening paper of the volume is another of those valuable contributions to the study of physiological chemistry which have rendered its author's name familiar to the medical student. Not long ago Dr. Jones was assured that lemon-juice occasionally made the urine alkaline. Doubting the correctness of this statement he instituted a number of experiments to determine the effect of the vegetable and mineral acids upon the acidity of the urine. In his first series of experiments the acidity of the urine was determined for twenty-four hours before any lemon-juice was taken, and this, like those he before made,[1] and which were subsequently confirmed by Dr. Wm. Roberts, of Manchester, showed the close relation existing between digestion, and the reaction of the urine.[2] In the second and third series of experiments the variations of the acidity of the urine when lemon-juice and dilute sulphuric acid, respectively, were taken, was observed. It was found that the natural variations of the acidity of the urine are so great as almost to hide the effect which even twelve ounces of lemon-juice in the day can produce. The decrease of acidity that occurred when food was taken was just as great on the day the citric acid was taken as it was on the day when none was taken. Hence Dr. Jones concludes "that lemon-juice and tartaric acid have the same action in increasing the acidity of the urine, and that neither of these acids, even when taken in very large doses, produces as much effect on the acidity of the urine as is produced by the action of digestion." The action of digestion so far surpasses the action of large doses of lemon-juice on the urine that if the urine had only been examined four hours after breakfast, its alkalescence might have been attributed to the action of the lemon-juice. The statement that lemon-juice makes the urine alkaline, undoubtedly arose from some observation of this kind.

"When accurate observations are made," the author holds, "it will never be found that lemon-juice, or any other free vegetable or mineral acid, can cause the urine to become alkaline; although, when there is an irritable stomach, the urine may frequently be found to be alkaline during digestion, even when vegetable and mineral acids are taken in large quantities."

Art. II. *A Case of Angina Pectoris, with remarks*, by J. Lockhart Clarke, M. D.—In this case extensive disease of the heart must have existed for some time before the appearance of any striking symptom, and the sudden manner in which these symptoms supervened, on a seemingly healthy condition, is worthy of remark. The patient's illness apparently lasted but little more than five weeks, and the pain was equally severe on both sides. Neither the symptoms nor the post-mortem appearances differed very remarkably from those which are common in the graver forms of this disease. Immediately beyond, and all along the attachment of the aortic valves, the inner surface of the aorta was raised into a transverse and convex eminence, which had a somewhat rough or uneven surface, and almost entirely obliterated the orifices of the coronary arteries. Under the microscope it was found to consist chiefly of fibrous tissue, without any appearance of atheroma. Post-mortem changes had unfortunately advanced too far to give any value to a minute examination of the nerve structures.

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[1] Animal Chemistry (H. Bence Jones), London, 1851, p. 41.

[2] Vide Am. Journ. of Med. Sci., April, 1870, p. 507.

Dr. Clarke briefly notices the hypotheses which have been advanced at various times regarding the essential nature and proximate cause of angina pectoris, and apparently lays particular stress upon the view of Laennec, "that the primary affection is seated sometimes in the pneumogastric nerves, and sometimes in the cardiac portion of the sympathetic, and that the brachial plexus becomes implicated"—a view which has been materially supported by recent investigators (*vide* M. Lancereaux de l'Altération de l'Aorte et du Plexus cardiaque dans l'Angine de Poitrine.—*Gazette Médicale de Paris*, 1864, p. 432.) The latest writers, MM. Eulenberg and Guttmann, in a very learned and valuable paper,[1] conclude from an analysis of cases, and from the experiments of Bezold,[2] "that the abnormal action of the heart in angina pectoris is due to the influence of the sympathetic on the ganglia of the heart; and as all the sympathetic fibres of the heart meet in the cardiac plexus, that this plexus is the medium through which the abnormal action is produced."

Art. III. *Notes on the Subcutaneous Injection of Morphia*, by EDWARD T. WILSON, M. D.—This article is only a *réchauffé* of our knowledge concerning hypodermic medication. The points upon which the author lays particular stress are: 1. That the solvent for the morphia should be distilled water without any admixture of acid. 2. That the initial dose should be much smaller than that usually given. 3. That the injection should be performed slowly.

Art. IV. *On Rheumatic Pericarditis*, by REGINALD E. THOMPSON, M. D.—This paper is founded upon the study of 171 cases of this disease, treated in St. George's Hospital. According to the post-mortem records the whole of the pericardium was diseased in 94 cases, or a little over 71 per cent., and a portion only suffered in 38 cases, or about 29 per cent. Out of 266 cases of acute rheumatism admitted into the hospital, 43 were attacked with pericarditis, or 16 per cent. Women, it appears, are extremely liable to this disease between the ages of 13 and 20. The earliest age at which a case occurred is 9; the oldest, 50. In men the liability extends over a longer period. The average age at which pericarditis occurs was found to be, for a woman, 19; for a man, 25. Far the greater number of cases are attacked before 30.

The cases being tabulated as regards the liability to pericardiac complication in the various attacks, it was found that in first attacks of rheumatism there were 25 cases of pericarditis; in second, 13; in third, 2; in fourth, 1; in sixth, 1. Out of 28 [32?] cases in which the date of its occurrence could be ascertained, it was found that it came on in 10 during the first week, in 16 during the second, and in 6 during the third week. Between the fourth and tenth days it occurred in 19 cases, and the favourite days were the ninth and tenth.

Dr. Thompson is inclined to agree with Dr. Peacock in finding pericarditis, preferring cases of rheumatic fever with slight external evidence of joint-mischief, while endocarditis is chiefly met with in the more severe cases.

The temperature was not found to be influenced to any notable extent by the intercurrence of this complication; and cases of rheumatism without pericarditis have been found to exhibit as high a temperature as cases with pericarditis. Pneumonia, a frequent complication of acute rheumatism, and, especially, of rheumatic pericarditis, has a decided effect in raising the temperature, and is frequently overlooked from the difficulty of making a physical examination in a rheumatic patient.

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[1] Die Pathologie des Sympatheticus. Archiv für Psychiatrie und Nervenkrankheiten, 1868–69. 1 Bd. 3 Heft., p. 702.

[2] Untersuchungen aus dem physiologischen Laboratorium in Würzburg, Leipzig, 1867. 2 Heft. ss. 181, 368.

Regarding valvular disease as a complication of rheumatic pericarditis, the following statistics are given. The valves were found perfectly healthy in 24 cases; mitral and aortic valves diseased in 47; mitral alone in 34; aortic alone in 8; aortic and tricuspid in 2; aortic, mitral, and tricuspid in 1. The average duration of all cases of this form of pericarditis was found to be 15 days.

The treatment of acute rheumatism now generally adopted in St. George's Hospital, is that so ably advocated by Dr. Fuller, and known as the alkaline (vide *Am. Journ. of Med. Scien.*, July, 1869, p. 196); but other methods have also been tried, and the results are stated as follows: "1. During the time that venesection was employed in this hospital for the cure of rheumatic pericarditis, many more cases terminated fatally than now, and in a manner that showed the pernicious effects of the treatment adopted. 2. Of the beneficial influence of mercury in this disease I can find no evidence. * * * On looking over the fatal cases treated by calomel and opium, one cannot but be struck by the frequent record of the pericardium being 'enormously' distended with effused serum. 3. With respect to the alkaline treatment, the first noteworthy observations to be made in the fatal cases are that the symptoms previously alluded to as preceding death are now no longer noted; that the patients do not die with a pericardium 'enormously' distended."

Dr. Thompson has not been able to satisfy himself that alkalies are antidotal to pericarditis, having no clinical notes of cases treated without alkalies with which to compare these statistics. He states, however, that on looking over the clinical cases, he finds "the best results, both in the duration of the pericarditis and of convalescence (a most important point in estimating the effect of treatment), from full doses of potash continued for a short period, followed by bark." Of treatment by continued doses of opium, our author thinks, that though it may tend to produce a condition of ease, it seems not only to prolong effusion but also retards convalescence.

The deductions which are made from the favourable results of these clinical cases are the following: If a case of rheumatism, likely to be attacked with pericarditis is to be treated with alkalies, full doses (say ʒj—ʒiss bicarb. with citric acid) are to be given, even if the amount of joint-mischief appears to be trivial. Should there be much pain on the occurrence of pericarditis, local bleeding may be used [thus affording great relief to the pericardial pain]. When the first stage of inflammation is over and effusion has taken place, then depressing drugs, with the exception of purgatives, should be withheld; personal experience can teach how depressing is the action of large doses of alkalies; tonics may be freely given, and stimulants, if the pulse shows that they are required. If the amount of effusion is considerable, the application of blisters over the heart will be found of use.

We have given a careful analysis of this paper because we consider it a very valuble contribution to medical science; its conclusions are not the results of mere theoretical consideration, but are based on positive evidence, and therefore entitled to the highest confidence.

Art. V. *Cases of Syphilitic Disease of the Nervous System*, by T. Clifford Allbutt, M.D.—In this paper Dr. Allbutt contributes the histories of twelve cases which show, in common with many others, that intense pain in the head, with nausea and dizziness, is very suggestive of syphilis; and this suspicion becomes a very high probability when local palsy of the face or orbit is found to exist. The convulsions in syphilis often occur without loss of consciousness, are frequently only partial, and often preceded by vertigo. Optic mischief, the writer states, is very common; it is generally neuritis or atrophy, except in the disease of vessels, when we see a very slow atrophy, seldom or never passing the second degree. The existence of optic neuritis or atrophy Dr. Allbutt thinks particularly significant. In commenting upon the curious combinations of clinical phenomena to which this disease gives rise, he remarks: "Syphilis seldom picks its way daintily along beaten ways, and seldom makes a quiet nest for itself like another tumour, but blunders carelessly into all and any parts just as they come. A mass in the hemisphere may give rise to but little apparent palsy, or to no break in the commoner relations of things, until the patient dies suddenly, after a few fits and a coma; on the other hand, a minute tract of inflammation, by snaring a nerve in its run, may cause at once a local palsy of an annoying or an alarming kind. A thin film of surface irritation, again, on the hemispheres may set up epileptic fits, which may be associated with another bit of mischief, strangulating a special-sense nerve, or causing some other distant local palsy, say perhaps in the cord, while the arteries also may be silently thickening and shrivelling, until one is blocked up, and a hemiplegia strikes down a strong young man years before his time." Syphilitic encephalic disease may occur in either sex at any age and interval after infection, and seems to follow any treatment; the only prophylactic and the only remedy, according to the author, being iodide of potassium taken for months and years.

Art. VI. *Clinical Observations on Acute Tubercle*, by EDWARD LONG FOX, M.D.—The author defines in this communication the various forms under which acute tubercle is met, and discusses the diagnosis of acute phthisis from acute bronchitis, acute pneumonia, typhoid fever, and meningitis.

In the diagnosis Dr. Fox relies upon the following elements :—

In acute bronchitis upon the more rapid emaciation, the perspiration, and the temperature of acute tubercle.

In typhoid pneumonia the dulness is more marked and more rigidly defined than in acute phthisis; the crepitation is more accurately connected with the region of dulness or is superseded by bronchial breathing only, the expectoration is more hemorrhagic, and there is absence or diminution of the chlorides up to a certain stage, which does not occur in acute phthisis unless there is concurrent pneumonia. The temperature also varies in the two conditions.

Typhoid fever and acute phthisis may have, in common, rigors, headache, stupor, delirium, subsultus, rapid and weak pulse, gurgling in the right iliac fossa, diarrhœa, cough, bronchial rales, emaciation, dry, brown tongue, sordes on lips, crops of sudamina. The points of difference are: 1. The generally greater dyspnœa in acute phthisis. 2. The absence of eruption (but this may also be absent in typhoid fever, and Dr. Fox has seen an instance in which a rose-rash existed in a case of acute tubercle). 3. The shape of the abdomen, which in acute phthisis is supple and not tense or tub-shaped. 4. Lastly, the temperature, which though high in both diseases, follows a more irregular course in acute phthisis than in typhoid fever.

As regards the temperature as an element of diagnosis, Dr. Fox states that in acute bronchitis it is often not raised beyond the normal standard, and never beyond 102° Fah. In pneumonia it will generally be high at first, and increase up to about the fourth or sixth day, and then fall regularly; the fall not coinciding with the clearing-up of the hepatized portion of lung. In typhoid fever the temperature will be high by the end of the first week, and will keep high for a very indefinite time. When, however, it begins to decline, its diminution is regular. On the other hand, in acute phthisis the temperature is subject to great and sudden variations, even to the extent of six or seven degrees, and bears no regular relation with respirations or pulse.

The diagnosis between simple and tuberculous meningitis must generally depend upon the previous history and constitution, and the evidence of tubercles in the lungs. The thermometer in tuberculous meningitis seldom rises above 102°, and in two of Dr. Fox's cases this temperature was not reached till the tenth day, the evening temperature before this date being only 100°. This will be found a valuable element in the diagnosis of this affection. In cerebro-spinal meningitis the author thinks the temperature is generally higher.

This paper is illustrated by twenty-six cases and diagrams showing pulse and temperature curves.

Art. X. *The Causes of Pulmonary Consumption*, by CHARLES THEODORE WILLIAMS, M.D.—This was originally read as a dissertation for the degree of Doctor of Medicine before the University of Oxford, May, 1869. The principal causes of pulmonary consumption are classed as follows :—

"1. *General causes*, which, by their weakening influence on the constitution *generally*, predispose to consumption: such are hereditary predispositions, want of pure air and good food, typhus and typhoid fevers, scarlatina, measles, cessation of discharges, termination of pregnancy and lactation, mental depression, and damp.

"2. *Local causes*, the effects of which are limited at first to the lungs, but may at a later date extend to the system. These are: attacks of bronchitis and hooping-cough; attacks of pleurisy and pneumonia; attacks of asthma; trades and occupations giving rise to a dusty or gritty atmosphere; injuries."

These various causes are illustrated by notes of numerous cases.

Art. XI. *Exophthalmic Goitre*, by W. B. Cheadle, M. D.—This paper contains the clinical history of nine cases of the disease, but, unfortunately its pathology is not elucidated by post-mortem examinations. The author does not think that disease of the cervical sympathetic will account for all the phenomena observed in exophthalmic goitre and suggests the probability of its being dependent, in a great majority of cases, upon uterine irritation. That this is not the ultimate cause, its occurrence in man, however rare it may be, certainly proves. In two very severe cases Dr. C. found great benefit to ensue upon the use of a lotion of tincture of iodine and glycerine kept constantly applied to the thorax and tincture of iodine ♏v., afterwards increased to x, in water three times a day.

Art. XVI. *On Aphasia*, by W. Wadham, M. D.—In this short but extremely interesting paper Dr. W. records the history of a case of aphasia of the atactic[1] variety (inability of converting thoughts into words) occurring in an ambidextrous boy (the left hand, however, being rather the stronger) subsequent to an attack of left hemiplegia, and continuing complete for three months; then there occurred gradual but imperfect recovery of speech, the apparent result of a patient and laborious process of education. Death occurred from exhaustion twelve months after the paralytic stroke, and there was found nearly total destruction of the island of Reil on the right side. Broca's region, the posterior portion of the third frontal convolution of the left hemisphere, was perfectly healthy.

In this case we are forced to the conclusion that the aphasia resulted as the consequence of the lesion in the right hemisphere and the history of the case gives additional strength to the views of Moxon[2] and Ogle.[3] For the explanation of the case, Dr. W. thinks "it is necessary to consider the brain as a symmetrical organ, probably composed of an assemblage of lesser organs arranged in pairs with similar functions. That under ordinary circumstances, and in the majority of men, the organ of speech in the left hemisphere is educated, but in the right remains dormant; the contrary being the case in men who by preference use their left hand. That in very exceptional cases like the one we are now considering, when individuals are ambidextrous, the organ may be fully educated on one side, and partially so on the other. That in this particular case the organ was fully educated, and the function developed on the right side, and to a less degree on the left; consequently that when destruction of the part in which the fully-developed function was localized took place, the boy became aphasic for a time, but subsequently had the function which was imperfectly developed on the other side sufficiently educated to give him the amount of speech he acquired, and which he did not live sufficiently long to perfect."

Art. XVIII. *Remarks on a Case of Locomotor Ataxy with Hydrarthrosis*, by T. Clifford Allbutt, M. D.—This case presented in a marked degree the form of joint mischief lately so elaborately discussed by Prof. Ball, of Paris, in the *Medical Times and Gazette* (1868, Vol. II., and 1869, Vol. II.). The right knee over the patella measured fifteen inches, and it was neither hot nor painful; the other joints were unaffected. The size of the knee was greatly reduced by pressure.

Art. XX. *Annual Report of Medical Cases during the Year* 1868, by Reginald Thompson, M. D., Medical Registrar.—From this, the concluding medical paper of the volume, we learn among other interesting facts, that peroxide of hydrogen has had a fair trial in cases of diabetes, and appears to be utterly useless as a remedy for this disease.

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[1] See Ogle on Aphasia and Agraphia, St. George's Hosp. Rep., 1867, vol. ii. p. 95.

[2] Brit. and For. Med.-Chir. Rev., April, 1866, p. 481.

[3] Loc. cit.

We have thus briefly analyzed the eleven medical papers of this volume. The gentlemen of the medical staff (which consists of nine physicians) contribute two of these papers, in all fourteen pages, and the Medical Registrar a third, and his "annual report of the medical cases admitted during the year," and of these four papers three contain the fruits of the hospital experience. This scarcely fulfils the original design of Hospital Reports, which are intended "mainly as a means of registering experience attained within the hospital." We hope that the medical staff of St. George's will hereafter, as they have in the past, furnish to the profession more liberally than they do in the present volume the results of their hospital experience, and that many succeeding volumes will bear witness to their industry and maintain the reputation they have achieved. I. M. H.

We shall next invite the attention of our readers to those papers which appear to be more particularly addressed to *surgeons*, and the first of these which we shall consider is:—

Art. VII. *Contributions to the Surgery of the Head: Sebaceous Tumours of the Cranial Region*, by Prescott Hewett, Esq., Senior Surgeon to the Hospital. —The great frequency with which these sebaceous cysts are met with in the scalp and adjacent parts renders the subject of their pathology and treatment one of importance, and we have in the present paper a most able and interesting contribution to our knowledge in this department, by the eminent Senior Surgeon of St. George's; than whom no living writer is better known as an authority upon all matters relating to the surgery of the head.

Some of these cysts have an inner surface exactly resembling skin, presenting even hairs and sebaceous glands, just like a true cutaneous structure; these are the "*Kystes dermoïdes sous-cutanés*" of Lebert, or the "cutaneous proliferous cysts" of Paget. They are commonly found in the neighbourhood of the orbit, and very often near the external angular process of the frontal bone; though firm when handled, they are not so when laid open, the cyst itself being rather thin and its contents soft and pultaceous, the hardness of the tumour before incision being thus simply due to its distension. These cysts are frequently congenital, and commonly deeply seated; even in their early stages they are attached to the periosteum, and as they increase in size they produce erosion of the bone, occasionally penetrating the skull and giving rise to convulsions or other forms of cerebral disturbance. The only treatment to be recommended is complete excision, which is easy enough in the case of the sebaceous tumour of the scalp, as here the cyst is usually loosely attached; but when the brow or adjacent parts are affected, careful dissection is often required in order to insure complete removal of the cyst wall, of which any portion that is left may lead to the formation of a sinus which will probably persist and necessitate a second operation.

"But in the great majority of cases the sebaceous tumours about the cranial region differ widely in many respects, from the cysts which have just been described." Thus the cyst wall and the outer layers of its contents may be so closely blended as to be indistinguishable, constituting what is ordinarily called a "thick-walled cyst," a name which Mr. Hewett considers incorrect. These tumours are at first almost completely solid, consisting of concentric layers of flattened epithelial cells; at a subsequent stage the central parts undergo softening, breaking down into a pultaceous mass which occupies the middle of the tumour, and in which a detached portion of the outer horny layer is occasionally found lying loose. In other cases the horn-like material forms septa circumscribing small cavities which contain the sebaceous matter, thus giving the tumour a multilocular appearance on section.

"In less common cases the contents of the cyst are altogether pultaceous; there is no horn-like material; and the cyst itself is thin and fibro-cellular. Or that which was pultaceous may become liquid, a thin fluid with epidermal scales floating in it. Or even these, in rare cases, may have disappeared, and the cyst may be filled with a more or less transparent fluid. If irritated by any cause, or roughly used, such a cyst may have mixed with its fluid more or less blood."

Such tumours, if hard, were considered by Velpeau to be fibrinous clots (the result of contusion) of which the central parts had undergone softening, while the large and fluid accumulations were similarly supposed to be collections of blood which had become encysted. "In some cases, crystals of cholesterine are mixed up with the sebaceous materials of an encysted tumour of the scalp, sometimes in small, sometimes in large quantities. Such crystals abundantly strewed amidst the epidermal scales render an encysted tumour not only quite solid, but give to it, on a section, a peculiar bright, glistening, mother-of-pearl appearance." This variety has been described by Müller as the cholesteatomatous tumour, but Mr. Hewett prefers with Paget to look upon it as essentially the same as the sebaceous tumour. "In very rare cases too the contents of a sebaceous cyst may become altogether cretaceous. The tumour is then perfectly solid, and remarkably hard like a bullet. I have sometimes found the white putty-like pulp in such a cyst of the scalp; but I have met with no case in which the entire mass of such a tumour had been calcified."

Besides the evils which these sebaceous cysts may produce by their mere increase in bulk, they occasionally inflame and suppurate, the bones beneath becoming carious, or a foul cancerous-looking ulcer may result, the patient being eventually worn out by exhaustion and repeated hemorrhages.

Sometimes a number of independent cysts grow closely together, presenting much the appearance of what Mr. Cock and Mr. Birkett have described as "sebaceous follicular tumours."

In concluding this very valuable paper, of which we have been able to give our readers but an imperfect sketch, Mr. Hewett gives some judicious advice as to the precautions to be taken before operating in these cases. The state of the patient's general health should be inquired into, and especially should the condition of the kidneys be ascertained, for albuminuria renders its subjects peculiarly liable to inflammations of a low type. The operation itself may consist of excision, or the skin may be first destroyed by means of caustic potassa or nitric acid, the cyst being readily pulled out after the separation of the eschar. The caustic alkali is particularly recommended by M. Legendre, of Paris, while the acid is the substance employed by the professional "wen-charmers" of the rural districts of England.

Art. VIII. *On Inflammation of the Retina*, by George Cowell, Esq., Assistant Surgeon to the Westminster Hospital, etc.—Mr. Cowell doubts the existence of any form of retinitis deserving the name of idiopathic, and adopts the classification of Professor Stellwag von Carion, into (1) Diffuse neuro-retinitis; (2) Exudative retinitis; (3) Nephritic retinitis; and (4) Pigmentous retinitis. The *causes* of inflammation of the retina he enumerates as 1. Irritation, such as *prolonged* exposure to very bright light, or *prolonged* straining of the accommodation, as in neglected or undiscovered hypermetropia; 2. Wounds of the tunics of the eye; 3. Constitutional syphilis; 4. Prostration from starvation, fevers, pregnancy, etc., with, perhaps, vascular changes from cardiac disease; 5. Bright's disease; 6. Leucocythemia; 7. Diabetes; 8. Embolism of the central artery of the retina; 9. Retinal extravasations; 10. Entozoa; 11. Intra-ocular growths; 12. Choroiditis, irido-choroiditis, or irido-cyclitis; 13. Posterior scleral staphyloma; 14. Optic neuritis; 15. Meningitis; and 16. Orbital growths or inflammations.

The usual symptoms of retinitis are mistiness of vision, with diminution of the visual field, pain of a subdued character in the eye and over the brow, without any photophobia (unless from coexistence of retinal hyperæsthesia), and without any conjunctival injection or change in the external appearance of the eye. "Ophthalmoscopically we find a greater or less degree of grayish opacity of the implicated portions of the retina, which conceals the epithelium and vessels of the choroid, with a tortuous and turgid condition of the retinal veins, well seen in the smaller branches. Except when the inflammation is confined to the peripheral portions of the retina, the margins of the optic disk and choroidal aperture are indistinct or invisible, and very often there are small blood extravasations along the course of the vessels. There is hyperæmia of the optic disk, and sometimes it is swollen and opaque. The vitreous is cloudy, varying from a *slight* haziness to a degree of opacity obscuring all the details of the fundus of the eye "

The inflammation begins in the connective tissue framework of the retina, implicating the vessels at an early period, and causing fatty degeneration of their walls; the nervous elements are usually last attacked, but when involved never recover. The inflammation often spreads to the choroid, especially in the exudative form. The hemorrhages and exudations vary in appearance and shape according to their position: "if large and rounded, they will be situated amongst the connective tissue of the granular layers of the retina; if small and striated, amongst the nerve layers; and if large and irregular, on the surface of the retina." These points are of importance with reference to the prognosis in any individual case.

Diffuse neuro-retinitis (which is the most common variety of the affection) is usually dependent upon constitutional syphilis; it may accompany or follow iritis, but generally occurs alone. It is marked by a central cloudiness of varying intensity, with a dilated and tortuous condition of the veins, often attended with extravasation. "Micropsia—a seeing of objects diminished in size—is frequently present."

Exudative retinitis is characterized by the appearance of yellowish or whitish-gray patches. "The mistiness of vision may be only partial, and the diminution of the visual field will correspond with the position of the patches of exudation; but the patches are generally situated more or less in the vicinity of the yellow spot, and thus considerably implicate central vision." This variety is much more intractable than the diffuse neuro-retinitis, the retinal and choroidal changes produced by the presence of the exudation precluding recovery in those tissues, and atrophy being the common result.

Nephritic retinitis is generally met with in the advanced stages of kidney disease. The retina becomes at an early period infiltrated with serum, hemorrhages occur, and "as the disease progresses, white spots of exudation form around the central portion of the fundus of the eye; these gradually increase in size, fresh ones appear, and all soon coalesce, surrounding the optic disk with whitish exudation, which has been described as forming a mound around it. . . . . Around the macula lutea are numerous angular whitish or yellowish white exudations, first described by Liebreich as arranged in a radiating form, and peculiarly characteristic of this form of retinitis." Vision is much affected in nephritic retinitis, the subsequent improvement being not proportionate to the curability or amelioration of the kidney disorder, but depending on the amount of damage to the nerve fibres.

"*Retinitis pigmentosa* is characterized by pigment spots in the retina, which assume the form of bifid streaks, stars, or 'bone corpuscles.'" The chief symptoms are night blindness and progressive diminution of the field of vision. The disease begins in childhood, is often hereditary and associated with deaf-mutism and deficiency of intellect. The intermarriage of blood relations is supposed to be a predisposing cause of its occurrence in the offspring. Both eyes are usually affected, and the disease (which is incurable) gradually leads to total blindness, which termination may not, however, occur until old age has been reached.

Mr. Cowell's interesting paper embraces the record of twenty-six cases which are given in detail, and subsequently tabulated for convenient reference.

Art. IX. *On Chronic Bone- and Joint-Disease*, by J. WARRINGTON HAWARD, Esq.—This is a paper of some interest as tending to confirm the view which has now many advocates among pathologists, that chronic affections of the bones and joints have often a local rather than a constitutional origin.

Of 134 cases of chronic bone- and joint-disease of which Mr. Haward took notes in the Hospital for Sick Children, "in only nine was there any sign of tuberculosis; and but seventeen displayed other signs of scrofula; in twenty-four some member of the family was said to have died, or to be suffering from phthisis, but the child itself presented no sign of the disease; in twenty-two only could any history of injury be elicited." The figures, with regard to phthisis, Mr. Howard believes to be too large, and those representing the proportion of antecedent injuries too small, for the reason that the poor are apt to designate all obscure chest affections as consumption, and, on the other hand, frequently forget or conceal the occurrence of injuries which may have been caused by their own violence or neglect.

As the converse of the above statistics, "of 85 consecutive cases admitted . . . for various tubercular affections, in only 1 was there any bone- or joint-disease," while of 146 cases in which an autopsy showed the existence of tubercle, "in only 8 was there any bone- or joint-disease found: viz., of spine, 1 case; of hip, 3 cases; of spine and hip, 1 case; of knee, 2 cases; of tibia, 1 case." Similar results are derived from an examination of the records of St. George's Hospital, as shown in previous volumes of the *Reports*.

Art. XII. *Clinical Notes on Unusual Surgical Cases*, by H. LEE, Esq., Surgeon to the Hospital.—Six cases of much intrinsic interest are narrated in this short paper, viz., (1) ossific union of fractured thigh in a man aged 98; (2) almost complete loss of the tongue from syphilitic ulceration in a young married woman, recovery following the use of calomel baths; (3) sudden, but fortunately only temporary disappearance of a testicle along the track of an inguinal hernia; (4) a remarkable case of quasi-hysterical joint-disease, to which we shall presently refer; (5) a curious case of embolism closely simulating syphilis, and (6) a case of double vision with either eye. The fourth case is one of very great interest. A young girl of 16 fell and struck her arm in July, 1863; an abscess subsequently formed in the forearm, and at a later period she presented the appearances of a patient suffering from hysterical disease of the elbow-joint. In November, 1864, fibrous anchylosis had occurred, and the adhesions were forcibly ruptured under chloroform. An abscess formed in connection with the joint, which was excised in June, 1866. Symptoms of chronic blood poisoning setting in, with extreme pain, the arm was amputated in January, 1867. The stump healed well, but became exceedingly sensitive and painful. On February 6th, 1868, the median and ulnar nerves were dissected out, and the pain recurring, on August 24th, all the nerves, including the musculo-spiral, were divided close to the armpit. Finally, on April 8th, 1869, the remaining portion of the humerus was removed from the stump, making a modified shoulder-joint amputation, and this time the patient appears to have been definitively relieved, after having submitted to eleven operations of greater or less severity. Mr. Lee's remarks upon the maintenance and localization of hysterical symptoms by the presence of real disease, are eminently practical and judicious. This remarkable case may be compared with that placed on record by Dr. Nott in his interesting "Contributions to Bone and Nerve Surgery," pp. 91–95.

Art. XIII. *Reminiscences of Cases from Private Practice*, by J. NICHOLLS, M.D., Chelmsford.—This paper, which is necessarily of a somewhat desultory character, contains a record of 21 cases, of which our limited space will permit us to give but the titles: these are, 1. Punctured wound of the external iliac artery, followed by aneurism; cured by pressure. 2. Compound comminuted fracture of the humerus; exfoliation of bone and perfect recovery after two years. 3. Ununited fracture of humerus; death. 4. Rupture of the urinary bladder; death. 5. Double strangulated crural hernia in a male; operation; death; post-mortem. 6. Inguinal hernia; strangulation; operation; no action of bowels for twenty-five days. 7. Fractured skull; ruptured meningeal artery, etc.; death and post-mortem. 8. Extraction of gall-stones through the abdominal wall; recovery. 9. Abscess of liver, opening into pleura; paracentesis thoracis; recovery. 10. Idiopathic tetanus, caused probably by eating underdone pork; recovery. 11. Hemorrhage from internal carotid artery, following scarlet fever; death. 12. Premature birth; short period of gestation. 13. Bronchocele; sudden death. 14. Large calculus in kidney; calculi in prostate; abscess; death. 15. Repeated arm-presentations; death probably from ruptured uterus. 16. Malformation; maternal influences. 17. Spina bifida; tapping; injection; recovery. 18. Hæmaturia; death. 19. Death after swallowing a half-penny. 20. Obstinate skin-disease following arsenical poisoning, and 21. Malignant disease of pericardium simulating aortic aneurism.

Art. XIV. *Two Cases of Excision of the Scapula; with Remarks*, by GEORGE POLLOCK, Esq., Surgeon to the Hospital.—Mr. Pollock's first case was one of malignant disease of the right scapula occurring in a girl of 16; the operation consisted in the removal of the entire bone, with the exception of the acromion and coracoid processes, and the wound healed readily, the patient remaining well for over six months, when the disease returned and proved fatal; the autopsy showing, however, that the portions of the scapula which had been left had remained healthy. The second case was one of very large tumour involving the right scapula of a man aged 47, and upon this occasion Mr. Pollock removed the whole of the bone with a portion of the posterior edge of the clavicle which was somewhat eroded. The patient had before the operation suffered from chronic bronchitis, which was apparently aggravated by the inhalation of chloroform, and death ensued as the result of this complication on the sixth day after the operation.

We perceive with regret that Mr. Pollock seems unacquainted with the exhaustive researches and statistical tables of Dr. Stephen Rogers, of New York, originally published in the number of this Journal for October, 1868 (pp. 359–380), and since copied by Dr. Watson in the *Edinburgh Medical Journal*, and reproduced in the *Archives Générales de Médecine;* as had our author met with the tables in question, his historical references would doubtless be more accurate than they now are: thus he would not have attributed the first entire excision of the scapula to Mr. Syme, but to Langenbeck, whose operation as shown by Dr. Rogers, preceded that of the eminent Scotch surgeon by several months.

The most valuable portion of Mr. Pollock's paper, apart from the record of his cases, which are both of very great interest, is that which considers the best mode of operation and the precautions to be adopted before undertaking this rather formidable procedure. After making the incisions recommended by Mr. Syme—"viz., one across the upper surface, and another midway from this to the lower angle of the bone or edge of tumour," our author urges the preferability of liberating first the posterior border of the mass, then the inferior, and then turning up the bone from below upwards. By this means a finger can be passed under the subscapular artery before it is divided, and the risk of hemorrhage from this source obviated. This plan was adopted by Mr. Pollock in both of his cases, before he was aware that the same method was advised by Sir Wm. Fergusson. "Previous to any attempt to liberate the scapula from any of its attachments, the subclavian artery should be compressed, and the compression should be continued until the operation is completed and the chief vessels tied." This compression may, if necessary, be much facilitated by means of a preliminary incision above the clavicle, the finger of an assistant being placed in the wound directly upon the vessel.

Mr. Pollock concludes his interesting paper with the following remarks, which appear to us so eminently judicious that we quote them in full for our readers' benefit: "In making incisions for the removal of a very large tumour here or elsewhere, the surgeon may economize blood by taking the following precautions: in the first place the incisions should not be longer than he requires for the time. For instance, if a tumour cannot be removed unless large flaps of skin are made, no longer incisions should be made than are requisite for the dissection of each flap in its turn. If a long incision be made, it will be bleeding at its lower extremity while the surgeon is separating some of the integuments at the upper part, and thus unnecessary loss of blood takes place. Again, more skin than requisite should not be saved for the flaps in the removal of the scapula. If that which is not required is left attached to the tumour, time is saved by not having to dissect it off; and so much blood is saved as would be lost in separating it from the growth to which it is attached. Lastly, *the tumour itself should not be cut into*—the incisions should only be skin deep. If the tumour be cut into at the same time that the incisions are made, a great gush of blood may occur; the tumour may be exceedingly vascular, its vessels will be diseased, and will not readily contract, and a free incision into it may give rise to most formidable hemorrhage; whereas outside the tumour the vessels will be healthy, and comparatively few may require to be secured when the removal of the bone has been completed."

Mr. Pollock's paper is accompanied with three excellent wood-cuts.

Art. XV. *Note on Excision of the Ankle-joint*, by T. HOLMES, Esq., Surgeon to the Hospital.—In this short but valuable paper, Mr. Holmes narrates the case of a lad of 18, upon whom he performed excision of the ankle-joint, removing the articulating extremities of the tibia and fibula, with the whole astragalus. The operation was done by two lateral incisions, behind either malleolus, care being taken not to wound any of the tendons. The astragalus was separated from its attachments to the scaphoid and calcaneum, and then twisted out with the lion forceps. The patient was discharged in less than four months with the wounds healed and the opening of an abscess which had formed in the calf of the leg very nearly so: "He could walk well with a stick, the toes moved freely, and there was some little passive motion at the seat of operation." Two points to which Mr. Holmes directs special attention, are (1) the superiority of the result which follows excision, in a suitable case, over that of either Pirogoff's or Syme's amputation, and (2) the propriety of removing the *whole* astragalus instead of merely its articulating surface. "I believe," he says in conclusion, "that if the operation of excising the ankle were more limited to healthy subjects, in whom the disease is probably traumatic, and if the astragalus were removed entire, the operation would be a far more successful one."

Art. XVII. *On the Treatment of Acute Orchitis*, by J. Rouse, Esq., Assistant Surgeon to the Hospital.—Mr. Rouse reprobates in strong terms the routine treatment ordinarily recommended in cases of swelled testicle, viz., by bloodletting, nauseants, and cathartics, as well as Fricke's mode of treatment by strapping; in our author's condemnation of these plans we cordially agree, for we believe them to be quite unnecessary and very distressing to the patient. Mr. Rouse is in error in supposing that "it was reserved for Mr. Henry Smith to recommend a very startling method of cure," viz., by puncturing the inflamed organ. This is in fact a mere revival of the plan long since adopted by Vidal (de Cassis), though to Mr. Smith (who hit upon it by accident and independently) is justly due the credit of making the plan widely known in England and in this country. Mr. Rouse's own method consists in administering a purgative draught, giving a grain of opium night and morning, and keeping the testicle "enveloped in a hot fomentation of Goulard and laudanum," prescribing "twenty drops of the acid tincture of steel three times a day" after the subsidence of the acute symptoms. Two cases are given in illustration of the efficacy of this mode of treatment, from which it appears that the pain is relieved by two grains of opium, the tenderness disappears about the third day, and the swelling vanishes by the end of a week, the patient then being considered as cured. Although we can scarcely regard it as news to be told that opium in large doses has the power of relieving pain, yet this plan is so simple that it is certainly worthy of a trial; if found to be satisfactory, it will show (like the mint-water treatment of rheumatism) how little we really know of the *natural history* of a disease with which we think ourselves perfectly familiar.

We may add that we have ourselves used Vidal's plan in a number of cases, and have been well satisfied with the results; the pain is *almost instantly* relieved by the puncture, the tenderness and swelling rapidly disappear, and the duration of the disease is we believe shortened, on an average, by about one-third. We do not always feel safe in pronouncing our patients cured merely because the organ is no longer swollen, for there not unfrequently remains for some time an induration and lurking tenderness about the epididymis, which if neglected may give rise to further trouble.

Art. XIX. *Report of the Curator of the Pathological Museum*, by T. P. Pick, Esq., Assistant Surgeon to the Hospital.—This is a very valuable paper, giving in twenty-three pages of small type the most interesting *post-mortem* observations of the year. Among many important cases we can note only a few: a patient fell from a scaffold twenty feet, and was admitted with complete paralysis, both sensory and motor of all the limbs and of the thoracic muscles. No vertebral displacement could be detected, and the motions of the head were unimpaired. Death occurred in forty-eight hours, and at the autopsy "the bones of the spine were found to be perfectly natural and uninjured. Upon making a section of the cord, an extravasation of blood, about the size of a hazel-nut, was found in the central matter opposite the fifth and upper part of the sixth spinal nerves; there was some amount of yellow softening around the extravasation, and the whole cord was softer than natural."

Eighteen cases of pyæmia were examined, the lungs being the seat of patches characteristic of disease in seventeen; the exceptional case in which the lungs were not so affected is described as one of "spontaneous pyæmia," though its history strikes us as rather unsatisfactory. The patient died after one day's residence in hospital, having been ill for six weeks before admission with cough, dorsal and lumbar pains, rigors and swelling of the lower extremities. The autopsy showed the lungs to be congested, and the bronchial tubes full of mucopurulent fluid. "The liver and spleen contained pyæmic abscesses." The kidneys were "coarse and congested," the alimentary canal being apparently healthy.

There are many other matters of interest referred to in Mr. Pick's paper, which may be profitably read by all students of morbid anatomy.

Art. XXI. *Annual Report of Surgical Cases during the year* 1868, by W. Leigh, Esq., Surgical Registrar.—This, like the last, is a paper to be studied rather than analyzed. Among the most interesting cases we observe one of successful removal of a large nasal polypus by Langenbeck's operation, *i. e.*, temporarily turning back the nasal bone. The polypus, which was of the gelatinous variety, sprang from the basilar process, and had penetrated the orbit through the lachrymal bone which had undergone absorption. A fatal case of gastrotomy for intestinal obstruction by a fibrous band, is recorded, the gut giving way under manipulation, and being too much softened to allow the formation of an artificial anus. Death ensued in three hours, the autopsy showing recent peritonitis and fecal extravasation. Mr. Leigh's excellent paper contains the customary tables of compound fractures, operations, admissions, deaths, etc.

A tolerably complete index (which was wanting in the previous volumes) adds materially to the usefulness of this. The fourth volume of St. George's Hospital Reports fully sustains, we think, the well-earned reputation of its predecessors. J. A., Jr.

Art. XXIII.—*Transactions of American State Medical Societies.*

1. *Transactions of the Medical Society of the State of New York for the year* 1869. 8vo. pp. 363.
2. *Medical Communications, with the Proceedings of the Twenty-Seventh Annual Convention of the Connecticut Medical Society, held at Hartford, May,* 1869. 8vo. pp. 208.
3. *Transactions of the Medical Association of the State of Missouri, from its inauguration, Dec.,* 1867, *to the annual meeting, April,* 1869. 8vo. pp. 198.

1. The sixty-second annual session of the *State Medical Society of New York* was opened by an address from the President, Dr. J. V. P. Quackenbush, of Albany, the subject of which is "Individual Effort and Individual Obligation," in reference to the development of medical science in all its branches, and in extending and rendering more effective the means for the prevention and the arrest of disease. The subject is handled with ability and eloquence, and the remarks relative to the study and practice of specialties are marked by good sense. In view of the present extent of the field occupied by medicine as a science and an art, it must be evident that it is one too vast to be successfully cultivated by any single labourer. It is proper, therefore, that each should direct his efforts to that portion of the work which he finds most congenial, "et in hac se exerceat."

The first of the scientific papers—"A Practical Treatise on Acupressure," is a "prize essay," by Dr. Joseph C. Hutchison. This, so far as it goes. is most interesting and instructive. In it are passed in review the principal methods of applying acupressure, illustrated by experiments on the lower animals, and observations on the arteries of man—the pathology of the subject—together with a synopsis of cases.

The treatise concludes as follows:—

"Considering that the entire reliability of acupressure for the arrest of surgical hemorrhage has been fully proven, let us inquire if it has any advantages over the ligature.

"1. Secondary hemorrhage is not so liable to occur with acupressure as with the ligature. There are certain constitutional states, such as the scrofulous diathesis, and other morbid conditions, marked by an aplastic state of the blood, which predispose to secondary hemorrhage. But this accident takes place far more frequently as the result of local causes, (1) from too rapid ulceration, or (2) too extensive sloughing of the vessel at the time of the ligature's separation. On the other hand, where acupressure has been employed, the internal surfaces of the artery have merely been placed in contact, no ulceration or sloughing ensues. Again it is often possible to compress several vessels with a single needle, hence secondary hemorrhage would be less likely to occur than if a ligature had been applied to each vessel separately.

"2. Acupressure, as was predicted by Simpson, has proven to be the most expeditious way of restraining hemorrhage; and, with a little experience in its practice, the easiest which has yet been devised, and the surgeon requires no assistant, as in using the ligature.

"3. Acupressure may sometimes be employed where it would be difficult or impossible to seize the vessels with the forceps, and draw them out of their sheaths, so as to allow the application of a ligature.

"4. Not only can two or more arteries be closed by a single needle. but the venous hemorrhage may be controlled at the same time with the arterial; thus preventing, it may be, the absorption by the open mouths of the veins, of noxious fluids from the surface of the wound.

"5. The needle can be removed in a few hours. or in two or three days, leaving the interior of the wound free from all foreign bodies. while the ligature is separated by a slow process of ulceration and sloughing. with the accompanying suppuration: and hence the primary union of wounds must be greatly diminished when the ligature is employed.

"6. Acupressure can be practised with safety upon arteries which are so much diseased that they are too brittle and friable to bear the strain of a ligature. In cases of aneurism, where the artery is diseased for some distance above the sac, the vessel may be closed by an acupressure needle, at a point where it would be inexpedient to apply a ligature."

The paper is illustrated by twenty-one wood-cuts.

A curious case is related by Dr. ALDEN MARCH of what he terms "Spontaneous Lithotomy." The patient, who had for some years suffered from urinary calculi, felt a sudden pressure upon the rectum, with a sharp sense of something giving way there. followed by a free discharge of urine per anum, which discharge continued up to, and for some time after, the removal of the stone. Early in September, 1868, inflammation of the perineum, with swelling of the scrotum, took place. In four or five days ulceration at the left side of the perineum set in, and increased rapidly. Soon after the patient discovered a hard foreign body. within and projecting from the ulcerated opening just below the left groin. The foreign body protruded more and more; at length the patient seized it with his fingers, and, by a tractive and wriggling movement, extracted what proved to be a large urinary calculus.

About a week after this Dr. M. upon examination detected a fistulous opening a little above the usual place of the incision in the lateral operation for lithotomy, sufficiently large to admit a man's thumb. The patient exhibited great emaciation and debility, with a sad and wrinkled visage, and all the indications of severe and long-continued suffering.

Soon after the removal of the calculus the patient felt comparatively comfortable, and in a great degree free from pain. Enjoying the comforts of a well-regulated hospital, and under a judicious tonic, alterative, depurative and narcotic course of treatment, pure air, and nourishing, easily-digested diet, he rapidly improved. The fistulous ulcer was treated with nitrate of silver, sulphate of copper, and the muriated tincture of iron. When the patient left the hospital, November 22d, 1868, the fistula was reduced to the size of the small end of a pocket grooved staff. After leaving the hospital he was without professional attendance, and the ulcer, February, 1869, has somewhat increased in size.

It was several weeks before the urine began to pass through the urethra; still only a portion finds its exit by the natural channel.

The next article is the report of the Committee "On the Result of Consanguineous Marriages," by Dr. R. NEWMAN, which is marked by all due caution, considering the small amount of reliable facts bearing upon the question which are available for drawing positive conclusions.

Next is the report of a Committee on "Propositions on Sloughing and its Consequences." To understand the somewhat obscure title of this report, it is necessary to refer to the fact that a surgeon was unjustly convicted of malpractice, and mulcted in damages to the amount of $500, because, that thirty days after the bandages had been removed from the limb of a lad who had been treated for fracture of the femur, sloughing of the leg took place, commencing at the calf. The surgeon thus convicted petitioned the New York Society for an examination of the facts connected with the management of the said case, and an opinion as to whether the gangrene which occurred in the limb of the patient was attributable to his mismanagement of the fracture. Before us is the report of the committee to whom was referred the petition. The report denies that the sloughing in the case in question was the result of mismanagement, and affirms certain propositions as the basis of their conclusions.

The report of the Committee on "Pharmacology," by its chairman, Dr. E. R. SQUIBB, presents nothing of especial interest, though his hints in reference to the manner in which the work of the convention for the revision of the Pharmacopœia, at its decennial session of 1870, could be effectually promoted are pertinent and sound.

Dr. HARVEY JEWETT presented a paper in recommendation of the powers of "Apocynum Cannabinum" as an active diuretic "in dropsical affections."

Dr. H. believes that practitioners have been led into error and a false estimate as to the diuretic action of the vegetable in question, by employing in its stead the *apocynum androsæmifolium*, which strikingly resembles it in most respects, but is much more active as an emetic and cathartic. It is sold in the shops as "*wandering milk-weed.*" or "*American ipecac.*"

A very interesting "case of excision of the head of the femur in the latter stages of morbus coxarius" is related by Dr. W. G. WHEELER, delegate from the *Massachusetts State Medical Society*. The propriety of this operation in cases of hip disease, in which the local affection has not been arrested in its early stage, is being every year more fully recognized.

The next paper is on "Vesico-vaginal Fistule, and its successful Treatment by the Button Suture," by Dr. N. BOZEMAN, which comprises the histories of five successive cases of vesico-vaginal fistule, successfully treated by the button suture, during a period of seven months.

Dr. HUN presents a very full account of the present state of our knowledge in respect to the "Trichina Spiralis," its natural history, its source, the effects produced by it when introduced into the human body, and the means for preventing the infection being communicated to the muscles of man, and, when these means fail, the proper remedies for the cure of the morbid symptoms which result from its presence.

A paper on "Glaucoma" is contributed by Dr. H. D. NOYES. The object of this communication is to show that the affection of the eye of which it treats is capable of recognition in its early stage, that its diagnosis is not then so obscure as to be beyond the capacity of the profession generally, and that in its early or acute stage it may be arrested by the operation of iridectomy—an operation of doubtful propriety at a later period of the disease—when perception of light is gone, and the tissues of the organ have become entirely degenerated.

Dr. HENRY S. WEST presents an interesting account of his "Medical and Surgical Experience in Asia Minor."

The next paper relates a case of "Ovarian Dropsy of two years' Duration," in which rapid recovery occurred after the operation of ovariotomy, performed by Dr. J. G. Orton, in a married lady aged 32 years, who had never borne any children.

Dr. J. W. S. Gouley presents an account of "External Perineal Urethrotomy," that is, an improved method of external division of the Urethra in Perinæo, for the relief of obstinate stricture, with remarks on the preparatory and after-treatment. The operation suggested by Dr. G. is no doubt well adapted to afford prompt and permanent relief in cases of stricture which too often resist all the means in common use. The paper before us is well worth a careful study.

Dr. W. Manlius Smith, one of the Committee on Pharmacology, treats of "Conium Maculatum;" pointing out some of the causes to which defects in quality of many of the preparations of the article are due, and suggestions in regard to certain morbid conditions of the system in which the use of a trustworthy preparation of conium would prove beneficial.

Next follows an instructive paper on "Placenta Prævia," by Dr. C. C. F. Gay.

"The Chart showing the Influence of Impure Air and Overcrowding on the Health of the various Wards in the city of New York," prepared by Dr. W. Faulds Thoms, is interesting, not merely to the people of New York city, by pointing out to them the portions of their metropolis at which sanitary reform is most imperatively demanded, but to the pathologist also, as furnishing him with facts which throw light upon the cause of endemics, especially those confined to strictly limited and often circumscribed localities. To the etiology of certain forms of disease, charts like the one prepared by Dr. T. are adapted to afford much light.

Next in order is a series of "Obstetrical Statistics," from forty-seven years' practice of the late Dr. T. W. Blatchford, communicated by R. H. Ward, M.D. These statistics are interesting, and valuable as a contribution towards a more extended series. The same remarks may be made in reference to the "Obstetrical Statistics," communicated by Dr. H. S. Chubbuck, which are inserted in the latter part of the volume.

Dr. H. S. Crandall relates the history of a case of an anomalous disease of the skin of the lower extremities, which he names "purpura or something analogous to it."

2. The subject of the annual address delivered at the opening of the Convention of the *Connecticut Medical Society*, by the President, Dr. S. B. Beresford, is "Practical Observations on the Abuse of Tobacco, and its Consequences on Health," which is discussed with great candour. While Dr. B. admits that a very moderate use of the cigar or pipe, under certain wise precautions, may be attended with no bad effects immediate or remote, yet it not being absolutely necessary to the maintenance of man's health or the promotion of his happiness, and its moderate use being liable to lead to its excessive use, the doctor arrives at the very reasonable conclusion, namely, the best and safest course is to relinquish its use in toto.

The communication of Dr. L. H. Wood on "The Influences of Mental Activity upon the Excretion of Phosphoric Acid by the Kidneys," was noticed in the No. of this Journal for April, 1870.

The communication from C. M. Carleton on "The Use and Abuse of Spectacles," is in every point of view most interesting. In its practical bearings it is all important. To do full justice to the author would be impossible by attempting an analysis of his communication, within the limits to which we are necessarily restricted, while, without the diagrams by which the teachings of Dr. C. are illustrated, any analysis of the communication would convey no very clear views of its teachings.

The communication of Dr. F. L. Dibble on "Hydrophobia," presents to our mind one of the clearest, the best authenticated, and the most conclusive series of facts in evidence of hydrophobia as a specific disease, its spontaneous occurrence in certain animals, chiefly of the canine species, and by the bite of these being capable of communication to other of the brute animals, and even to man, than we ever recollect to have met with. The paper will admit of no useful analysis.

"Notes on the Use of Veratrum Viride," and "Notes on Subcutaneous Injection of Morphia, Atropia, and Strychnia." Both these communications are from Dr. G. A. WARD. The first is to call attention to the value of veratrum viride as a remedial agent, by the relation of a series of cases—two of abdominal wounds, to evince its power to prevent or control peritonitis, one of acute meningitis, and two of pleuritis to show its prompt and beneficial action.

The second communication of Dr. W. presents the history of cases illustrative of the results of subcutaneous injections of various narcotic agents in a wide range of cases.

Dr. S. G. HUBBARD reports a "Case of Supra-Renal Melasma or Addison's Disease," which is instructive, but it hardly bears out the accuracy of Dr. Addison's pathology of the bronzed skin disease, inasmuch as the indications of disease of the supra-renal capsule (there was but one), was trifling to those of the kidney which was in a state of complete disorganization. The case of Dr. H. is certainly remarkable for the long duration of the renal disease (full three years), and it apparently might have continued for years longer, but for the occurrence of embolism in the right ventricle of the heart.

The paper on "Vital Force," by Dr. M. C. WHITE, is full of truisms, establishing the fact that there is in all living organisms a vital force, but how generated, and why its controlling influence ceases to act within such limited periods in individual organisms, Dr. W. throws not a ray of additional light.

Attention is called by Dr. S. G. RISLEY to the poisonous ingredients (soluble compounds of arsenic, copper, lead, etc.) which enter into the composition of the lower-priced water colours, made into square cakes and put up in small boxes, sometimes sold under the name of "toy paints," and the danger incurred by those who use these "water colours," especially to such as wet them for use with the tongue.

A "Case of Pseudo-Cyesis, or Spurious Pregnancy," is related by Dr. I. G. PORTER. The case is a curious, and to a certain extent, an instructive one. Such cases are comparatively unfrequent; they may deceive the young practitioner, but to the older and more experienced the absence of placental souffle and of the sounds of the fœtal heart, will prove at least that they are not cases of pregnancy.

The Medical Communications are followed by "A Memoir of Dr. GEORGE E. PALMER, of Stonington, by Dr. ISAAC G. PORTER. Dr. Palmer died May 8, 1868, aged 65 years.

3. The Transactions of the *Medical Association of Missouri* comprises a series of papers highly creditable to their respective authors. Whether they are all of them precisely of that class of communications which our State Medical Societies were expected to elicit and present to the medical profession of our country at large—personal observations on all the branches of medical science and practice, either in confirmation or contraversion of generally received opinions and therapeutic plans, is a question we shall not stop, on the present occasion, to discuss.

The address on "Fœticide, or Criminal Abortion," by Dr. M. A. PALLEN, expresses, in bold language, the sentiments which every high-minded, well-informed physician must necessarily entertain in respect to a species of murder, which does not stop at the extinguishment of the life of its immediate victim, but is liable to cause severe physical suffering to her who commits to the hands of the butcher the fruit of her womb, and to impair her comfort and usefulness throughout the remainder of her days.

A very interesting communication from Dr. A. HAMMER gives the "Statistics of fifty-one successive Capital Amputations."

Dr. W. B. OUTTEN discusses the all important question of the "Causes and Relationship of some Hereditary Diseases." The subject is treated with very little profoundness. We feel no disposition to call in question any of the views advanced by Dr. O.; but we think that he has not sufficiently elaborated the question he made choice of for inquiry, especially that portion of it which pertains to the relations of hereditary diseases—a subject, the complete investigation of which is calculated, we suspect, to throw light on more than one important etiological question.

The "Advancement of Knowledge of Diseases of Females during the last quarter of a Century," is the subject of a communication from Dr. G. M. B. MAUGHS. It contains nothing new, and as the entire paper is comprised in seventeen octavo, wide-margined pages, printed in large type, it must be evident that the writer has not been able to say much in relation to the tolerably long list of subjects, many of vast importance, in respect to almost everything relating to many of which there exists much difference of opinion among our most distinguished practitioners, and which it would seem he was necessarily called upon to pass in review in the proper accomplishment of the task he had assigned himself.

Of the description of an "Improved Hodgen Splint for treating Simple and Compound Fractures of the Femur," by Dr. E. A. CLARK, together with the two succeeding ones, "Fractures of the Olecranon," and "A Suspension Splint for treating Simple and Compound Fractures of the Leg," both by the same author, we can only give the titles. A verbal description, unaccompanied with the illustrative wood-cuts would scarcely convey any clear idea of the construction of the several apparatus, or of its adaptedness to effect the object for which it was designed.

Dr. JOHN GREEN recommends the "Treatment of Lachrymal Obstructions by Dilatation of the Natural Passages" by means of Leaden Styles. Dr. G. prefers lead as the material for the dilating styles in cases of lachrymal obstruction to silver, the material usually employed, because he conceives that a leaden style of the same or even larger size can be passed with greater ease, as it adapts itself readily to the curvature of the passage, while it causes comparatively little pain by its continued presence, and hence the smaller size can be more rapidly changed for larger. The difficulty of manipulating the very flexible lead wire, especially the smaller sizes, is overcome, he says, by making the styles tubular, and inserting a stylet of tempered steel wire, which is to be withdrawn as soon as the style is placed in position, when the projecting top of the latter is bent over so as not to interfere with the movements of the eyelids.

On "The Use and Abuse of the Obstetric Forceps," by Dr. G. M. B. MAUGHS, is a paper marked throughout by good sense, correct principles, and, in general, highly judicious rules of practice.

On "Artificial Pupil," by Dr. M. DICKINSON. This is a paper replete with interest. The author endeavours to show, by the adduction of cases, that, under even highly discouraging circumstances, whenever, throughout any portion of its circumference, the cornea presents a slight extent of transparency, a resort to the operation is always productive of good, often resulting in a complete restoration of sight.

The last paper in the volume before us, by Dr. J. GREEN, is entitled "An Optical Demonstration of the Characteristic Phenomena of Astigmatic Vision," or that visual defect which is dependent on a difference in the refractive power of the eye in different meridians. A very curious subject. Of Dr. G.'s demonstrations no clear account would be given unaccompanied by the pictorial illustrations with which it is accompanied. D. F. C.

ART. XXIV.—*A Practical Treatise on the Diagnosis, Pathology, and Treatment of Diseases of the Heart.* By AUSTIN FLINT, M. D., Professor of the Principles and Practice of Medicine, and of Clinical Medicine in the Bellevue Hospital Medical College, etc. etc. 2d edition. Thoroughly revised and enlarged. 8vo. pp. xiii., 550. Philadelphia: Henry C. Lea, 1870.

DR. FLINT'S contributions to the study of diseases of the chest are of a character to place him in the foremost rank among his own countrymen as an investigator in all that pertains to the pathology, diagnosis, and treatment of this class of affections; in fact, we know of no one who has recently written in English whose views on these points are more original, or who has done more for the elucidation of this portion of our science. The first edition of the book before us was favourably noticed in the July number of this Journal for 1860, and by the medical press generally. The accomplished writer of the review in this Journal has done his work with such thoroughness and impartiality, that it is only necessary at this time to confirm the favourable opinion which he there expressed of the merits of the work, and to indicate some of the changes and additions which have been made in this edition. The ten years which have passed since the publication of the first edition, have afforded to Dr. Flint many opportunities for observing cases of diseases of the heart, and it is upon an analysis of these (four hundred and fifty in number) that he has relied in making his revision. In consequence of the enlarged experience, gained from the observation and careful noting of so many cases, he has modified and corrected some of the statements in the first edition. As an instance of this we may mention that he no longer teaches that purely functional disease of the heart never leads to hypertrophy of that organ, as he has seen this condition occur in a case of exophthalmic goitre, in which no other exciting cause could be assigned for it than the long-continued violent action of the heart.

In the new matter we notice a reference to the sphygmograph, together with some typical tracings of the instrument in various forms of cardiac disease; but we regret not to find an expression of opinion as to the degree of aid we may expect from it in diagnosis, and especially in difficult cases in which the physical signs are obscure. Certainly the sphygmograph does not afford us the assistance which its inventor and advocates claimed that it would, and it is still a matter of doubt whether it will permanently maintain a place in our science. Some of the reported cases will be found to be of interest. Among these may be mentioned one reported at page 124, in which a scirrhous mass surrounded the heart and gave rise to the physical signs of pericarditis with effusion. In another case it was believed that rupture of the interventricular septum had been produced by a blow over the cardiac region. Four cases of thoracic aneurism, treated according to Bowditch's modification of Tufnell's plan, are also reported: in none of these did a cure result; but Dr. Flint does not regard his failure in these cases as a proof that this plan is of no use in any instance.

In conclusion, it only remains for us to commend this book to those who are anxious to acquire a thorough practical knowledge of the diseases of the heart. Dr. Flint has, by the careful revision to which he subjected it, brought it up fully to the requirements of the present day, and it may now confidently be placed in the hands of the medical student as one of the best and most practical treatises on the subject in the English language. J. H. H.

ART. XXV.—*Manual of Chemical Examination of the Urine in Disease; with Brief Directions for the Examination of the most Common Varieties of Urinary Calculi.* By AUSTIN FLINT, Jr., M. D., Professor of Physiology and Microscopy in the Bellevue Hospital Medical College, New York; Fellow of the New York Academy of Medicine, etc. 12mo. pp. 75. New York: D. Appleton & Co., 1870.

THIS small handbook of directions for the qualitative and quantitative examination of the urine was prepared as a companion to a set of test-apparatus furnished by an instrument-maker at Dr. Flint's suggestion, and is of little value in any other connection. As no reference is made to urinary deposits or microscopical investigation, its usefulness is still farther limited. It will, however, be found convenient by those, if any there are, who have not access to one of the numerous larger works upon the same subject. Under the head of albumen we mark the omission of any statement relative to the forms of that substance which have an unusual reaction with heat and nitric acid; and also of the fact, very important in many cases, and carefully insisted upon by Beale, that when the quantity of albumen is small, either a very little or much nitric acid will dissolve it and prevent its detection. Dr. Flint's suggestion that the several solutions of Féhling's test for sugar be kept in separate bottles and combined as required, is a very good one. The gradual reduction of the copper and consequent vitiation of the mixed fluid is thus avoided. For estimating the amount of urea Davy's process is recommended, and Liebig's mentioned only by name. The author has found, however, that the results are not satisfactory if the American solution of chlorinated soda is used instead of the French. In the appendix there are directions for the analysis of urinary calculi most frequently met with, and tables to facilitate quantitative calculations. These tables are reprinted upon a single folded sheet at the end, which can be cut out and posted in a conspicuous place for easy reference. We regret that the author has followed Dr. Beale in substituting the embarrassing grains and fluidounces for grammes and cubic centimetres. Apparatus graduated according to the decimal system is readily obtained, and renders the whole proceeding much more simple.

E. R.

ART. XXVI.—*The Dispensatory of the United States of America.* By GEORGE B. WOOD, M. D., President of the American Philosophical Society; President of the College of Physicians of Philadelphia; Emeritus Professor of the Theory and Practice of Medicine in the University of Pennsylvania, &c.; and FRANKLIN BACHE, M. D., Late Professor of Chemistry in Jefferson Medical College of Philadelphia; Late Vice-President of the College of Physicians of Philadelphia; Late President of the American Philosophical Society, &c. Thirteenth edition, carefully revised. 8vo. pp. 1810. Philadelphia: J. B. Lippincott & Co., 1870.

AN enlarged leaf, and about one hundred additional pages in the thirteenth issue of this great work, give us the measure of the rapid advance in pharmacological knowledge since the twelfth edition was published, only five years ago. Any analysis of the new matter would be superfluous. As the work has been done before, so is it continued now, and the profession will recognize with peculiar pleasure that the surviving author's skilful hand has lost none of its power. Everything that is of value concerning discoveries in pharmacy, recent uses of old remedies, and the introduction of new ones, will be found fully stated down to the latest possible date. The Dispensatory maintains its position as the most beneficent and generally useful medical book now in use.

E. R.

ART. XXVII.—*Ueber das Vorkommen Fibrinöser Entzündungs Producte in den Bronchien, und Lungen alveolen. Ueber Fibrinöse oder Pseudomembranöse Bronchitis und Pneumonie. Bronchitis Fibrinosa, Bronchitis Pseudo-membranacea, Pneumonia Fibrinosa.* Von Dr. LEBERT, Geheimerrath, und Professor in Breslau.

On the Product formed in the Bronchi and in the Air-cells of the Lungs in Cases of Inflammation of these Organs. On Fibrinous or Pseudo-membranous Bronchitis und Pneumonia, Bronchitis Fibrinosa, Bronchitis Pseudo-membranacea, Pneumonia Fibrinosa.

UNDER the above title, Professor Lebert has published in the *Deutsches Archiv für Klinische Medicin*, running through the numbers for 1869, a very complete, able, and instructive monograph in relation to a form of disease with which our physicians, as a body, would seem to be but slightly conversant, or, at least, to be little aware of the frequency of its occurrence in connection with ordinary forms of intra-thoracic inflammation, and the modifications it imparts when present to their symptoms, march, and termination. Believing that our readers will be gratified by having laid before them a general analysis of the views advanced by Professor L. in this admirable monograph, we have endeavoured to present one in such a form as shall do justice to the author, and, at the same time, by its conciseness, adapt it to the necessarily limited space appropriated to the bibliographical department of this Journal.

The fibrinous product met with so often in the inflammatory conditions of the bronchi and air-cells of the lungs, mark out, according to our author, the cases in which these conditions occur, a morbid affection, different entirely from. and unconnected with what has been denominated diphtheritis. It must be distinguished also from the results of those somewhat rare, or more properly very doubtful. cases, in which the diphtheritic inflammation, commencing in the throat and larynx. is supposed to extend thence downwards into the finest bronchial ramifications.

During childhood there occurs frequently, in attacks of ordinary bronchitis and of broncho-pneumonia, fibrinous formations in the bronchial ramifications, and yet without the presence of any very characteristic symptoms to indicate their presence, and without the occurrence of any fibrinous shreds in the sputa. In such cases the fibrinous formations are to be looked upon in the light of a mere complication, which may, however, in most cases, augment the suffocative character of catarrhal pneumonia, and also increase the danger of the attack.

There is a single case upon record. that of Hayn, in which the bronchial ramifications and pulmonary cells were, in a new-born infant, clogged with fibrinous deposits. This case proves the possibility of fibrinous bronchitis or fibro-pneumo-bronchitis occurring during intra-uterine life and the first days of infantile existence.

Professor L. describes the form of disease he considers as an acute. essentially fibrinous bronchitis, which, it is true, he admits, considered ontologically, exhibits no very sharply defined pathognomonic characteristics; nevertheless, a very little examination will show its essential character. It occurs twice as often in males as in females, more frequently also during childhood and youth than in after years. It very seldom occurs in the aged. This form of disease is characterized by severe, prolonged paroxysms of coughing, extreme difficulty of respiration, amounting, in some cases, apparently to impending suffocation, with often bloody sputa. The cough and difficulty of breathing are greatly relieved upon the discharge by the mouth of masses of fibrinous matter. This discharge usually occurs between the fourth and sixth day of the attack, in some cases not until the tenth or fourteenth day, or in other very rare cases again, not until the end of the third or fourth week. The discharge may take place only once, or be repeated several times a day. In the acute form of the disease the ejection of fibrinous matter may continue from seven to ten days, but its frequency diminishes usually from the second to the fourth day.

When first expectorated, the fibrinous masses are so intimately incorporated with mucus or blood, that they are very liable to be overlooked. They become much more apparent under water. They will then be seen ramifying in the form of tubes or cylinders, which divide and subdivide until, finally, they acquire a capillary fineness; often, at one end, there occurs a thickening, forming, as it were, a bulb. They are either hollow or solid, and consist for the most part of consolidated fibrinous matter, inclosing numerous white blood corpuscles (pus corpuscles) and a few epithelial cells.

Special auscultatory signs are seldom present in the form of disease under consideration. The following signs have, however, been adduced as diagnostic: A clear sound at a part of the chest where no distension is observable, and where the respiratory movement is very weak, scarcely audible, or when, over a small circumscribed space, the respiratory murmur is audible. Intra-bronchial rattling, friction sound, a valve-like sound, as though a membranous partition sank and rose in inspiration and expiration.

The disease may occur in a mild or in a severe form. The first being attended with moderate and unfrequent paroxysms of coughing and difficulty of breathing; the second, on the contrary, is marked by frequent and intense paroxysms of almost impending suffocation. It is in this latter form that a fatal termination is the most to be feared. Professor L. tells us, as the result of his experience, that the deaths are in the proportion of four in seventeen cases. In only three was death produced by asphyxia. In fourteen cases it was consequent upon adynamic typhoid collapse.

The disease may run its course rapidly, while in other instances it may be somewhat prolonged. It may have a duration of from one week to one week and a half, or it may run on for three or four weeks or even longer. When death takes place, it ordinarily occurs between the sixth and twelfth days. The diffuse vesicular pneumonia, which is becoming to be more carefully distinguished from an original dissemination of catarrhal bronchitis, though, it is true, only a kind of intermediate morbid condition, resulting from a transition of one disease into the other, may occur, as was pointed out forty years ago by Lobstein of Strasburg, under the name of *croupal* bronchitis. A case in point is referred to by Morgagni. This theory of croupal, or more correctly, of fibrinous bronchitis or pneumonia is also sustained by Rokitansky.

We are to recollect that, as was pointed out some twenty-five years ago by Remak, that small fibrinous bronchial concretions are almost invariably met with in the proper sputa of ordinary pneumonia, and further, that even large fibrinous masses are occasionally coughed up in simple pneumonia the same as in the acute fibrinous form. In proof of this fact there has been put on record a series of cases in which a correct diagnosis has been clearly established: one by Morgagni, one by Oppolzer, one by Barth, and one by Professor L. In cases of ordinary pneumonia, fibrinous expectoration may occur in the course of the disease if protracted.

Not less interesting is another group of cases of acute pneumonia, in which, usually, there are formed small bronchial and pneumo-cellular fibrinous concretions. The disease occupies usually the entire bronchi of one lobe of a lung. Morgagni records a case of this kind; and a highly interesting series of similar cases is described by Nonat as having occurred during an epidemic of influenza, in patients especially who were convalescing. Many cases are related as having been treated at Schützenberger's clinic at Strasburg. This form of pneumonic disease is described by Professor L. in his work on *Pathological Anatomy*, where he gives a drawing also of the fibrinous product found in the lungs. Professor L. thinks it probable that it is to the presence of this fibrinous deposit in the lungs that the fatal result is generally due in those cases of pneumonia which eventuate in death.

The chronic form of idiopathic fibrinous bronchitis is met with more often in males than in females, in the proportion of nearly three to two. It occurs more often also during the earlier than during the later periods of life. It is seldom met with in persons over sixty years of age. They who are most liable to its attacks are such as, in popular phrase, "take cold easily," who are the subjects of chronic catarrh, or who are liable to frequent exposure to a cold and damp atmosphere. There would seem to exist, apparently, a predisposition to the disease in all the members of certain families.

The attack commences usually as one of simple catarrh, only assuming in its course those symptoms which stamp upon it its fibrinous character. The latter may, however, become apparent with great promptness. Often the expectoration of fibrinous matter is preceded by hæmoptysis. Severe paroxysms of coughing, and a sense of impending suffocation, may precede the expectoration of fibrinous matter, and be frequently repeated; at each repetition, however, abating gradually in violence. In prolonged cases the leading symptoms are such as to lead to a suspicion of the presence of tubercles in the lungs.

Chronic fibrinous bronchitis may be developed after repeated attacks of the disease in its acute or subacute form, occurring at very different, and sometimes prolonged intervals. During these attacks, before the fibrinous discharge takes place, the vital capacity of the lungs may become very much diminished, but, after the coughing-up of the excreted fibrinous matter, it is liable again to return to its normal condition. The physical signs of the chronic form of fibrinous bronchitis are the same as in the acute form.

The ordinary termination of the disease, even after long years of duration, is usually favourable. In twenty-seven cases, three, or eleven per cent., terminated fatally during a fit of strangulation.

It is to be kept in mind that the chronic form of fibrinous bronchitis may occur as a symptomatic affection during the course of some other disease. Seven well-marked cases of this are on record, in one of which it came on in a case of syphilis. Deep-seated ulceration of the trachea and at its place of bifurcation will cause bronchial contraction, dilatation ensuing, however, upon the expectoration of a membraniform substance. Deep-seated ulcers of the respiratory tubes Prof. L. has met with only as a result of syphilis. In one case the chronic fibrinous bronchitis occurred in conjunction with fatty degeneration of the heart with partly gangrenous and partly purulent pneumonia; in a third case it occurred in connection with empyema; and in four others with pulmonary tuberculosis. Chronic disease of the lungs, more than any other malady, would seem, therefore, to give a predisposition to the occurrence of chronic fibrinous bronchitis.

The pathogeny of abnormal fibrinous productions in the bronchi and pulmonary cells is of a far more extensive and common occurrence than is ordinarily supposed. Whenever inflammation becomes developed in these parts, as has been correctly stated, its product is inclined to assume a fibrinous character. In cases of common pneumonia it is in the nearest bronchial tubes that the fibrinous character is first developed. It is entirely devoid, however, of anything specific in its character.

The mechanism of the formation of these fibrinous bodies in inflammation of the air passages is, according to our author, as follows: premising that, according to Cohnheim, the fact being confirmed by the more recent experiments of Prof. L., the so-called pus-cells are, for the most part, free white blood corpuscles. With the escape of these *leucocytes*, there exudes, at the same time, a spontaneously coagulable albuminoid fluid. Its consolidation, apparently is the first to take place, being followed by the solidification of a fibrinous fluid, exuded simultaneously with it, which includes or envelops the free white cells and a portion of the adjacent epithelium. The fibrinous formation thus fashioned is perfected by a quick repetition of the same processes. In general, the exudated fibrogenetic fluid appears to be very intimately connected with the formation of the white blood cells. Prof. L. never saw an instance in which red blood corpuscles were found to be imbedded in these fibrinous formations. A proof of this is furnished by the sputa proper to pneumonia; separate its different components, and it will be found that red blood cells exist only in the more slimy portion, which is abundant in mucus, and secreted solely by the glandulæ of the bronchial mucous membrane. In this viscous, tenacious fluid, more or less coloured by the presence of red blood corpuscles, will be found the small, tubular ramifications mechanically entangled together, and imbedded in a granular, filamentous basis, in company with many round, enucleated cells and white blood corpuscles, which, upon the application of acetic acid, are rendered more apparent, but without any admixture of red blood cells.

That not only diffused cellular pneumonia, but. also, the catarrhal bronchopneumonia of early life has a very decided disposition to assume the fibrinous form is proved by the fact of the relative frequency with which we encounter, at the bedside, the fibrinous formation as an anatomical complication in the latter disease during childhood. Nonat's cases, which occurred during the prevalence of epidemic catarrh at Paris, in 1837, exhibited, as it were, a kind of transition from one to the other, of the two leading forms of inter-bronchial fibrinous deposit.

Fibrinous deposits may be absent entirely in cases of ordinary bronchitis, even when occurring in young persons; even the most severe cases of pneumonia may exhibit a relatively small fibrogenetic tendency, without our being able to discover for this any immediate cause. Prof. L. believes that, in some cases, there may be a particular predisposition to fibrinous deposits, present in some persons, absent in others. He has known several sisters of a family, all of whom were simultaneously attacked with fibrinous bronchitis. Some peculiarity in the local inflammatory process may, it is not absurd to suppose, also exert a certain amount of influence, so that a proportionately greater amount of fibrogenetic fluid is made to accumulate in the vessels at the seat of the inflammation than is the case in inflammatory processes occurring in other individuals; as a consequence of this state of things, it is reasonable to believe, that a much greater amount of fibrinous matter will be poured out into the bronchi or pulmonary cells—the excretion of fibrinous matter being an item in the ordinary course of the disease.

This state of things—the overfilling of the inflamed vessels with fibrinous matter—may not be remedied by the exudation of the fibrogenetic matter, and then the true character and location of the attack is first developed; from which epoch its course may be prolonged for days, or even weeks, and, assuming a chronic form, from one or many years, with varying length of intervals between its accessions. Even after bronchial inflammation has been arrested, it may be reinduced readily, with its fibrinous character. After the lapse of years, however, the local predisposition may finally cease.

Fibrinous bronchitis has, by some writers, been pronounced a severe form of croup, resulting from the spreading downwards, into the trachea, bronchi, and pulmonary cells, of the croupal inflammation, commencing at the fauces. This view of the form of the disease in question is not so common now as formerly. It is true that in cases of pneumonia in the smaller bronchial ramifications fibrinous products may occur, and from thence spread throughout all the bronchi, even to the upper bronchial bifurcation. This has been proven by recent observations recorded by Lücken and Zieful. In cases where the ordinary expectoration of small coagula, as are seen in pneumonia, and which are not replaced by fine capillary filaments, upon an anatomical examination of the hepatized lung there will be found in the proper pulmonary cells only a moderate accumulation of cysts, as it were, completely glued together, and presenting no trace of an intermediate fibrinous substance, resembling the fibrinous concretions of the bronchial ramifications. We observe, further, in cases of true fibrinous bronchitis, as in pneumonia, large concretions discharged by coughing, terminating very often in very fine, almost capillary ramifications, the finest having a diameter of 1–2 mm.; this, it is true, is often absent. It, is, therefore, very probable that the fibrinous formations in the bronchi are of very different diameters.

It is very evident that, amid all the varieties exhibited by fibrinous inflammations of the respiratory organs, there present themselves two very distinctly marked forms of true fibrinous bronchitis, having their anatomical bases in the more or less disposition to, the extent of surface occupied by, or the more or less persistence of, the fibrogenetic morbid action. The amount of fibrinous deposit, the nature and extent of its divisions and bifurcations; the adhesiveness of the entire mass, are all disproportionate to the excretory power of the bronchi, and therefore decrease the vital respiratory capacity of the lungs. Hence the great difficulty of breathing, the necessity of increased and more forcible efforts to relieve the bronchi of their oppressive load, by severe paroxysms of coughing, the frequent rupture of small bloodvessels, and the impending sense and danger of suffocation. Very often the fibrogenetic action diminishes or ceases, subsequent to frequent copious and intense paroxysms of expectoration, and a condition of general convalescence sets in.

Fibrinous bronchitis, as above described, exhibits as a secondary disease of the respiratory organs, the utmost multifariousness, in different cases, as to its causes and the extent of bronchial fibrogenesis. It is a well-established fact that fibrinous bronchitis may occur during all and every attack of inflammation of the respiratory organs, as was pointed out many years since, by Prof. L. Now a form of disease, like the one under discussion, having so different and diversified pathological bases, must necessarily become, every day, in the view of all reflecting physicians, stripped of its character, as an essential malady. Inflammation itself is, in fact, experiencing, in this respect, since the commencement of the present century, the same lot which has befallen the former supposed essential character of fever. D. F. C.

ART. XXVIII.—*Die Epidemische Diphtheritis und deren Schnellste Heilung. Nach Klinischen Beobachtungen Bearbeitet.* Von Dr. ALBAN LUTZ, Prakt. Arzt. in München. 8vo. pp. viii, 62. Wurzberg: Druck und Verlag der Stahelischen Buch- und Kunsthandlung. 1870.

Epidemic Diphtheria and its Treatment considered from a Clinical Standpoint. By Dr. ALBAN LUTZ, of Munich.

THE author of this pamphlet seems to have had two objects in view in writing. 1st. To prove that diphtheria is primarily a local disease, and only affects the constitution secondarily. 2d. To make known the remarkable power which he asserts the flowers of sulphur possess, when blown into the throat, of causing the disappearance and destruction of the membrane. The first proposition is, he thinks, sustained by the fifteen cases he reports, the second by the remarkable success which followed the insufflation of sulphur in four cases. This evidence is hardly a sufficient number in the one instance to overturn the well-established theory as to the general nature of the disease, or in the other to establish the merits of a treatment in a disease in which so many remedies have appeared to be successful in at least an equal number of cases.

Dr. Lutz thinks that the claim of diphtheria to be considered a local disease is further established by the fact that fever rarely, if ever, precedes the deposition of the membrane; may sometimes be absent during the entire course of the disease; and, when present, is not observed to increase regularly in intensity until the maximum is reached, as is the case in typhoid and the eruptive fevers. No regularity, moreover, is observed in the order of the succession of the symptoms, and this is especially true, not merely of the deposition of the membrane, but also of the occurrence of the enlargement and tenderness of the cervical and other lymphatic glands, and of paralysis. The continued fevers also have the further property in common that one attack of any of them seems to protect the individual against subsequent attacks, which is well known not to be the case in the disease under consideration. Still another argument against the general nature of the disease is the power which he thinks we have of cutting the disease short—a power we certainly do not possess in the continued fevers, but which is assuredly within our reach in the treatment of some confessedly general diseases. Sulphur, as a remedy in diphtheria, appears to have been proposed in 1868, by Barbosa, a physician of Lisbon, but has since been used, not only by Portuguese, but by German practitioners. The following are among the effects produced by the insufflation of the flowers of sulphur: The membrane becomes soft, and dissolves without destruction of the tissues; the inflammation moderates; the glands diminish in size; the fever subsides; appetite and sleep, together with a feeling of health, return to the patient. Sulphur, he says, acts in two ways when locally applied: 1st. As an irritant. 2d. As a parasiticide. Now as it can scarcely be admitted that it is in the former that its action is curative in diphtheria, we are forced to the conclusion that the beneficial results following its use are due to the property it has of destroying the lower organizations, and hence, our author argues, the contagious principle in diphtheria must be a cryptogamic growth. This view of the nature of the disease he finds confirmed by microscopic examination of the membrane. The flowers of sulphur are introduced into the throat of the patient by means of an India-rubber tube and handball syringe, and the application may be repeated three or four times a day, combined or not, as the judgment of the physician may dictate, with chlorine water and carbolic acid. Quinia, iron, and other tonics are to be given wherever they may seem to be especially indicated. Wherever his treatment was employed Dr. Lutz has never had a serious complication or troublesome sequel, and he adds, that these may always be avoided by a prompt use of the sulphur.

It is scarcely necessary to criticize views which are so much at variance with those of pathologists and microscopists; it will be sufficient to remark that one or two of the author's own cases are not corroborative of his view of the local nature of the disease, for there were decided constitutional symptoms before the deposition was discovered. The absence of these symptoms is, moreover, not sufficient to exclude the idea of a constitutional disease, for there are many cases of scarlatina in which sore throat is its first manifestation, and many of measles in which lachrymation precedes the fever and the occurrence of the eruption. The fact, also, that the general symptoms are frequently most marked in cases where the local disease is of little extent—nay, more, that when the epidemic influence is peculiarly virulent it is not uncommon to see the evidences of blood poisoning unaccompanied by membranous deposition, seems to be an insuperable objection to the adoption of the theory which he seeks to establish. We do not mean by this to deny that the disease is capable of local propagation, *i. e.*, that a portion of diphtheritic membrane brought in contact either with the throat, or an abraded surface in an apparently healthy person, may sometimes increase in size, and even give rise to all the symptoms of diphtheria. But in very few cases can the actual transferrence of membrane from throat to throat be distinctly traced, and as the cryptogamic nature of the deposition is by no means generally admitted, it is scarcely conceivable that the emanations from the mouth and nose of a diphtheritic patient, no matter how concentrated, could ever produce a purely local but specific inflammation.

In regard to the local application of sulphur, we have only to say it is well worth a trial. So many remedies have been recommended and have failed, that we may be pardoned, perhaps, if we do not too precipitately enroll ourselves among its advocates. J. H. H.

Art. XXIX.—*Essai sur les Maladies du Cœur chez les Enfants.* Par le Dr. H. René Blache, Ancien Interne en Médecine et en Chirurgie des Hôpitaux de Paris, etc. etc. etc. 8vo. pp. 224. Paris: P. Asselin, 1869.

The peculiarities which diseases of the heart present in early life have not, our author thinks, received the attention at the hands of systematic writers which their importance demands. Not only is he disposed to think that the heart is more frequently diseased in childhood than is generally admitted, but also that cardiac affections may at this time present certain modifications of the usual symptoms. The causes, too, of this class of diseases are not precisely the same in the youth and the adult. The well-written pamphlet before us indicates some of these peculiarities and modifications, and contains the reports of no less than fifty-seven cases of various forms of cardiac disease, which more or less fully sustain and corroborate the views expressed by M. Blache.

Diseases which have, as a marked characteristic, a tendency to implicate the heart, appear to have this tendency very much intensified when they occur in subjects less than fifteen years of age. As an example we may mention rheumatism, in which, as is well known, the danger of cardiac complications is greater the younger the patient. But it is not only in well-marked cases of articular rheumatism that this complication may occur, for cases of endo- and pericarditis occurring in children suffering simply from torticollis or erythema nodosum are reported. In fact, it is a question in the author's mind whether inflammation of the investing or lining membrane of the heart may not sometimes be of rheumatic origin when there is no other manifestation of the disease. The same tendencies to inflammatory disease of the heart is manifested in scarlatina when it occurs in children. On the other hand, hypertrophy and dilatation of the heart are less common as complications of renal disease; and this is readily explained by the fact that the most frequent form of Bright's Disease in early life is the acute desquamative nephritis, in which this complication is much less frequent than in the contracting or cirrhotic form. Chronic affections of the respiratory organs are not so likely to induce incurable disease of the heart in children as in adults, simply because they themselves are frequently capable of relief if not cure in the very young and healthy, and because the equilibrium of the cardio-pulmonary circulation is more easily reëstablished in organs which are every day gaining in force. It is true, however, that in hooping-cough, in consequence of the great distension of the right ventricle, which occurs during the paroxysms of coughing, such permanent injury may be inflicted upon the heart as to render recovery impossible. Deformities of the chest also, when of such a nature as to occasion serious obstacles to the circulation, are not infrequently accompanied by disease of the heart.

Certain symptoms, which in the adult are constant accompaniments of organic disease of the heart, are frequently absent even when there exists a serious valvular lesion, and much stress is laid on the frequent want of a due correspondence between the general symptoms and the physical signs by M. Blache. This absence of constitutional symptoms, he explains by the integrity of the muscular structure of the heart in early life. Hence it is that in children secondary congestions of internal organs and diminution of the peripheral circulation, are so infrequent. But if the general symptoms are unsatisfactory at this time of life, the physical signs are even more positive than in the adult. Thus we find that bulging of the pericardial region is more marked (the reason for this is sufficiently obvious), and pericardial friction and valvular murmurs more distinct.

A few cases are reported to show that both pericarditis and endocarditis may occur in utero. One case is given in detail, in which a loud systolic murmur indicating mitral insufficiency disappeared in course of time, and other cases in which murmurs became much less intense; from which Dr. Blache infers that under favourable circumstances valvular lesions in children are capable of relief, if not cure.

We have thus given a very hurried review of this little *brochure*, hoping by it to put our readers in possession of the author's views. We cannot say that there is much that is absolutely new in the book, but it certainly contains the reports of a great many interesting cases, and may be regarded as a very excellent *résumé* of the subject of which it treats. J. H. H.

ART. XXX.—*Renal Diseases; A Clinical Guide to their Diagnosis and Treatment.* By W. R. BASHAM, M. D., F. R. C. P.; Senior Physician to the Westminster Hospital, and Lecturer on Medicine, &c. pp. xiv., 244. London: John Churchill & Sons., 1870.

The same. With illustrations, pp. 297. Philadelphia: Henry C. Lea, 1870.

THE subject of the urine in its physiological and pathological relations has been so exhaustively treated of late years in numerous easily accessible works, that an additional volume, without new investigations, can be of value only when issued in the immediate interest of clinical teaching. Dr. Basham's purpose is to promote practical knowledge of renal diseases, and his large experience in bedside instruction has enabled him to make this guide to their diagnosis and treatment an appropriate sequel to his former extended publications. He follows the classification adopted for many years in his lectures on medicine, and divides the subject matter into three parts. Part 1 treats of the first group of kidney affections, those "marked by symptoms more or less of an inflammatory character," under the general head of *nephritis*. The *first section* is devoted to their *causes and pathology*, and discusses the following modes of development and the resulting conditions: idiopathic (doubtful); external injuries; substances taken internally, including turpentine, cantharides, and others acting directly, with lead and phosphorus remotely; febrile poisons; cold and wet; gout (calculous nephritis and pyelitis); tubercle in the kidney or its outlets; cancer; peri-nephritis; parasitic ova; pregnancy. *Section second* gives the *symptoms, diagnosis,* and *treatment* of the above.

Part 2 presents the second group, non-inflammatory diseases, as *chronic nephritis* or *chronic albuminuria*, and subdivides them into four forms according to the structural changes. Of these we shall speak below. The causes described are pre-existing blood poison (certain fevers); strumous taint; syphilitic taint; gouty taint; mineral poisons; alcoholized blood; obstructed states of the circulation; purulent drain; congenital hydro-nephrosis. The closing section on the *symptoms*, *diagnosis*, and *treatment* of these progressive degenerations, is followed by part 3, which contains a comprehensive and intelligible account of the significance of physical, chemical, and morphological changes in the urine. A few illustrations of urinary deposits have been very properly introduced by the American publisher. As the contents of these chapters consist chiefly of known facts and of opinions generally accepted, we dismiss them from farther consideration, with the remark that the easy descriptions and compact modes of statement render the book pleasing and convenient. The peculiar classification of the forms of structural change deserves, however, a passing notice; especially as the author while giving his own views, introduces incidentally full references to those of Johnson, Dickinson, Grainger Stewart, and the German writers. A concise account is thus presented of the subject which students usually find most obscure and perplexing. Dr. Basham recognizes seven forms of pathological change in the kidney; three types of alteration resulting from an inflammatory process, and four from more chronic degenerations. The three former represent merely three successive stages of a continuous process. First, the purplish-red kidney of acute Bright's disease. Second, the heavier kidney of uncured acute Bright's disease, of yellowish flesh hue, the early stage of the large, white, smooth, anæmic kidney, which is the third and last variety.

The chronic forms are:—

1. The granular contracted red kidney (granular and fatty), color reddish-yellow with characteristic granulations. 2. The granular enlarged, pale, mottled kidney with similar granulations. 3. The amyloid, waxy or lardaceous kidney. 4. The atrophic, gouty or contracted kidney. Dr. Basham insists upon the independent character of the first variety, and associates with it rather than with the fourth the term *cirrhotic*. He believes that it is never the sequel of either the "large smooth kidney," or of the "enlarged, pale, mottled kidney." He also denies its identity with the fourth form, which he says is found in cases of gout only, and is the direct result of the deposit of urates in the fibrous structure of the organ; while the granular contracted reddish-yellow kidney occurs also in patients who are not afflicted with gout. The condensation of fibrous tissue is much less and the granular change in the cells more marked. It is admitted that the symptoms in the two instances are very similar. That a granular or fatty change of the cells is frequently associated with increase and contraction of the fibrous elements is a fact familiar to all; but we cannot consider either the anatomical or clinical characters of this condition sufficiently distinctive to justify its designation as an independent kind of degeneration. In other respects the views of Dr. Basham correspond to the simpler arrangements of other authors. E. R.

Art. XXXI.—*A Treatise on Syphilis.* By Walter J. Coulson, F. R. C. S., Surgeon to the Lock Hospital and to St. Peter's Hospital for Stone and Urinary Diseases. 8vo. pp. xx., 373. London: John Churchill & Sons, 1869.

This work, as we learn from the preface, is founded upon a course of lectures delivered by the author to the students of the Lock Hospital. Certain alterations and additions have been made, and it is now offered to the profession as "a compendious, yet . . . . sufficiently complete treatise on syphilis." Mr. Coulson is an enthusiastic "dualist;" that is to say, a believer in the essential difference between the lesion, which in this country is usually called the *chancroid* or *simple sore* (but which he calls the soft or non-infecting chancre), and the initial lesion of syphilis, for which should properly be reserved the name of *chancre*, but which is designated by Mr. Coulson as the infecting chancre. As our author's views upon these theoretical questions are such as we ourselves entertain, we are of course prepared to commend them as correct; and it is but simple justice to say that in the pages before us these views are very clearly and forcibly enunciated. At the same time we cannot help thinking that a student going into practice with the idea that the diagnostic marks of chancroid and chancre were always to be found as sharply defined as he would reasonably infer from the teaching of Mr. Coulson, would be not unfrequently wofully disappointed. It is indeed this practical difficulty, we believe, that has so often driven surgeons into the convenient, if unphilosophical belief, that there is no essential diversity among venereal sores; attributing thus their own mistakes to a fancied confusion in the operations of nature. The fact is, however, that nature does not err, though doctors unquestionably do, and the criticism which we have to make, therefore, upon this part of Mr. Coulson's book is, that he represents the diagnosis of primary syphilis as a much simpler affair than it really is; it being, indeed, often quite impossible to make a positive diagnosis without having the case under observation for a considerable time, relying thus more upon the *natural history* of the case, than upon the symptoms presented at any particular period. Nor should this excite surprise, for the same thing is seen in other diseases—the eruptive fevers for instance, and in the case of syphilis, there is the additional difficulty, that the histories given by patients are almost invariably inaccurate, even when not intentionally falsified.

Leaving these theoretical considerations, we take pleasure in commending Mr. Coulson's book as a sound practical guide to the recognition and treatment of venereal sores and their consequences. The different varieties of bubo are well described and the proper method of dealing with each clearly pointed out. The various syphilitic eruptions are successively commented upon, and their distinguishing peculiarities indicated succinctly, and as satisfactorily, probably, as can be done without the aid of illustrations. Mr. Coulson's remarks upon the use of mercury in syphilis seem to us to be eminently just: the mode of administration which he himself usually prefers, is that by inunction. "The patient, as a general rule, may be directed to rub in half a drachm or a drachm of the strong mercurial ointment every night. The part which I select for divers reasons, is the soles of the feet. One obvious advantage is, that the mercurial ointment in this situation never gives rise to erythema, as it commonly does in other situations, where the skin is more sensitive. Thick woollen socks are to be worn night and day . . . Every four or five days the feet should be well washed, and the socks changed, to insure absorption, and to prevent irritation of the nails."

The latter part of Mr. Coulson's volume does not strike us as favourably as the first portion; the chapters on visceral syphilis and on syphilitic affections of the muscular and nervous systems are not very well arranged, and bear the marks of hasty compilation, rather than of either pains-taking research or original investigation. We observe with regret that no notice is taken of the early labours of Dr. Thomas Reade, in connection with the nervous lesions of syphilis, and, indeed, so far as we know, this gentleman's name is not once mentioned in Mr. Coulson's pages. We cannot but think that the long delay in publication, to which our author alludes in his preface, might have been profitably spent in revising and perfecting the latter portion of his work.

There are two or three points which have attracted our attention in perusing Mr. Coulson's volume, which seem to call for remark: One is the reference in the preface to the "deplorable error" which, according to our author, seems to be widely prevalent among British surgeons of "administering repeated courses of mercury to a patient every time that he may contract a soft or non-infecting chancre." We believe that the large majority of surgeons, both at home and abroad, whether dualists or unitists, are agreed not to give mercury for primary symptoms, at least unless induration is very clearly marked, and we cannot but feel that this accusation of ignorance is much too sweeping to be just.

Again, as a matter of taste merely, we should prefer not to see in the table of contents and in the index, "Mr. Walter Coulson's method," and "Mr. Walter Coulson's observations," heralded so frequently. In his commendation of "Zittmann's method," we cannot but think that our author has momentarily forgotten himself. Surely Mr. Coulson does not really attribute much importance to "three pints of the strong decoction, hot," in the morning between seven and ten, and "three pints of the weak decoction, cold," in the afternoon between three and six, with coffee, bread and butter, and a chop at 11 A. M., and tea, bread and butter, and a steak at 7 P. M. Suppose the cook should, by an unfortunate error, serve the beef for breakfast, and the mutton for tea, does Mr. Coulson seriously think it would impair the efficacy of the "treatment?"

From what has been said, it will be seen that our estimate of the volume before us is upon the whole rather favourable than otherwise; at the same time there are better books, both for student and practitioner, in the market, and while Mr. Coulson's work does not add anything to what was already known (indeed it does not profess to do so), we do not think it will much increase his own reputation as a writer, though it may doubtless serve an useful purpose by diffusing knowledge in an accessible form.

The book is handsomely printed, and presents a neat appearance in spite of its edges being trimmed in what we regret to know is called the "American style."

J. A., Jr.

Art. XXXII.—*Lectures on the Principles of Surgical Diagnosis: especially in relation to Shock and Visceral Lesions.* Delivered before the Royal College of Surgeons of England, by F. Le Gros Clark, F. R. C. S., Surgeon to St. Thomas's Hospital, etc. etc. 8vo. pp. xiv., 345. London: John Churchill & Sons, 1870.

These lectures were delivered in the theatre of the College of Surgeons, during the sessions of 1868 and 1869, and are now reprinted (with some few additions) from the pages of the *British Medical Journal*, in which they first appeared. The lectures are twelve in number, the first being introductory, and the others treating successively of the general principles of surgical diagnosis; shock; fractures of the skull; lesions of the encephalon; injuries of the spine, and lesions of the spinal cord; fractures of the chest, and lesions of the lungs; lesions of the neck and throat, and of the heart; lesions of the abdominal walls and viscera; and of injuries of the pelvis, and lesions of the pelvic viscera.

Each of these important subjects is handled in a masterly and, we may add, very attractive manner, and we do not believe that any surgeon can read Mr. Clark's lectures without both profit and pleasure. We do not purpose to offer our readers an analysis of the volume before us, nor to indulge in any extended comments upon either its matter or style, but shall merely invite attention to one or two points which seem to us to call for special remark. Several pages are devoted to the subject of *temperature* in surgical injuries. "In simple *shock* and *reaction*," our author observes, "the fall in temperature appears to average about one or two degrees, as tested at the time of the patient's admission into the hospital, generally about half an hour or an hour after the accident; and the reaction is marked by a rise in temperature to over 100 degrees, and usually below 103 degrees, within the next thirty-six or forty-eight hours." Hemorrhage coexisting with shock tends to produce a still greater reduction of temperature, the lowest point reached in any case observed by Mr. Clark, in which recovery followed, being 91°.2, the case being one of cut throat. "In *Rigor*, the temperature rises always shortly before the commencement of the attack, and remains high for a varying length of time, generally about half an hour after the termination of the shivering. In the rigor of pyæmia, the height to which the temperature may rise appears to vary with the acuteness of the disease, ranging between 100 degrees and 106 degrees. In *Operations*, there was usually a fall of about half a degree, during or after the operation, in those cases which recovered. Chloroform seems to exercise little or no influence on the temperature under these circumstances. In the fatal cases no such fall took place. The temperature has been rarely observed to fall below 97 degrees, during the shock consequent on an operation. . . . . In the reaction succeeding an operation, if the temperature exceed 104 degrees, the prognosis is decidedly unfavourable; but not necessarily so, if no rise occurs, provided the general condition of the patient be not otherwise unsatisfactory. . . . . The maximum temperature is reached in from twenty-four to forty-eight hours after operation in cases which recover." In Mr. Clark's experience the temperature before death in cases of inflammation following brain injury is higher than that reached in any other surgical cases; "the highest death temperature of which we have a record was 106 degrees, in a case of abscess of the brain complicated with pyæmia." Upon this point we cannot but think the experience of St. Thomas's Hospital exceptional, for it is usually found, we believe, that the temperature rises higher in *spinal* than in *cranial* injuries; perhaps the highest point reached being 111 degrees Fahr. (in a case recorded by Sir Benjamin C. Brodie), which temperature persisted even after death. [*Med.-Chir. Trans.*, vol. xx. p. 147.]

With regard to the propriety of operating during the existence of shock, Mr. Clark justly observes that the decision in each instance must depend upon the particular circumstances of the case: "Observation has taught me that operations of some severity may be undertaken, during shock, without seriously adding to the risk, if security against loss of blood can be insured," but on the other hand, if the lesion be not serious, "speedy reaction and normal re-establishment of the nerve functions may be expected," and "under such circumstances it is better to wait for reaction, before any fresh shock is inflicted." The exhibition of chloroform in profound shock, our author looks upon as inadmissible. We have but little experience with this particular anæsthetic, but as regards ether we can testify to its applicability in any case where the degree of shock permits the question of operation to be raised at all; we have repeatedly known the pulse to rise upon the administration of ether, and the patient's general condition to be absolutely better after an amputation done with the aid of this anæsthetic, than before the operation was begun.

Trephining in cranial injuries, Mr. Clark regards "as an expedient fraught with danger;" nevertheless he advises it in the treatment of certain forms of fracture, and in cases of intracranial suppuration. With respect to the same operation in cases of spinal injury, our author, after a full and candid examination of all that has been advanced in its favour, comes to the conclusion that trephining the spine is not "brought within the pale of the justifiable operations in surgery."

We shall go no further in our extracts from Mr. Clark's volume, which we most cordially and earnestly commend to the attention of our readers. We have but one regret to express in connection with the work, and that is that its author had not (as none could have better,) made it an exhaustive treatise upon the subjects which it embraces. This, indeed, we take to be a prevailing fault in modern surgical writing; there is so much to be read, and it is so widely scattered through various monographs and journals, that there is a strong temptation for any one (and especially for one who like Mr. Clark is entitled to speak *ex cathedrâ*) to draw from personal experience rather than from the recorded observations of others; and thus the evil multiplies itself, so that for a student or ordinary practitioner to acquaint himself with the modern doctrines of, *e. g.*, *shock*, a half dozen or more separate papers or books must be collected and read, because there is no exhaustive essay on the subject, the requisites for accurate study being thus increased to such a degree as to deter many, if not most from familiarizing themselves with the results of modern researches.

Mr. Clark's lectures are neatly and correctly printed, and sparsely illustrated with sufficiently good wood-cuts. J. A., Jr.

Art. XXXIII.—*The Indigestions; or, Diseases of the Digestive Organs functionally Treated.* By Thomas King Chambers, Hon. Physician to H. R. H. the Prince of Wales, etc. etc. etc. Third American Edition, revised. 8vo. pp. 383. Philadelphia: Henry C. Lea, 1870.

We should be glad to think that our review of a former edition of this work (see No. of this Journal for July, 1867) contributed in any measure to bring it to the favourable consideration of our brethren in this country. The work has been received with great favour by American physicians. As evidence of this, the author has revised the third edition for the American publisher, a new edition not being yet required in England. He is warranted in saying, as he does in the preface, that he has faith in the kindly feeling with which it will be here received.

In treating of "the indigestions," Dr. Chambers is peculiarly happy, both as regards the matter and the manner. He treats of the various forms of disorder of the digestive system in their relations to the different foods; the difference of seat, namely, in the stomach and in the intestinal canal; the agency of the salivary fluids; the secretions of the glands of the stomach and intestine; the pancreatic fluid, and the bile; the numerous disturbing agencies, intrinsic or extrinsic; and the therapeutic objects. In this comprehensive view of the subject he brings to bear upon it the latest physiological facts relating to digestion, and he exemplifies the various forms of disorder by introducing a large number of cases. The latter are always pertinent, and they are presented with clearness and conciseness. Herein he shows a tact which is as desirable as it is rare. In short, with respect to the matter, we commend the work most cordially, as containing an excellent summary of our present knowledge in this department of medicine, and abounding in sound, practical precepts. We consider that the work is eminently calculated to do much good, by substituting correct views respecting dietetics, in the place of erroneous and injurious notions which have been, and are still prevalent, both in and out of the profession.

We take great pleasure in commending the work as regards its manner. It is written in a sprightly, colloquial style, which arrests and engages the attention. It is not often that one can say of a medical treatise that it is as interesting as a novel. We may say this of Dr. Chambers' work without any disparagement of its matter. It is a book which may be taken up with pleasure when heavier reading would prove tiresome. The busy practitioner who wishes to make available for improvement his irregular moments of leisure, knows how to appreciate an excellence of this kind.

The call for a third edition in America, in anticipation of a similar requirement in England, is sufficient proof that our opinion of the merits of the work, as expressed in a former review, has been sustained by the sentiment of the profession in this country; and Mr. Lea is entitled to thanks for responding to this call.
A. F.

Art. XXXIV.—*The Membrana Tympani in Health and Disease. Illustrated by twenty-four chromo-lithographs. Clinical Contributions to the Diagnosis and Treatment of Diseases of the Ear, with a Supplement.* By Dr. Adam Politzer, of the University of Vienna. Translated by A. Mathewson, M. D., and H. G. Newton, M. D., Assistant Surgeons to Brooklyn Eye and Ear Hospital, &c. 8vo. pp. 183. New York: Wm. Wood & Co., 1869.

In his *Introduction*, Dr. Politzer speaks of Toynbee as the pioneer in critical examinations of the changes produced in the membrana tympani in disease, and also mentions the more recent researches of Wilde and Von Tröltsch.

The importance of *post-mortem* examinations of diseased conditions of the ear is dwelt upon; "and since," says he, "in my opinion the diagnostic significance of any condition of the membrana tympani can only be estimated and established by a comparison with the *post-mortem* condition, I recorded with especial care those cases in which there was a near prospect of a *post-mortem* examination."

Of the importance of examination of the membrane, he says: "An accurate examination of the membrana tympani is indispensable for a complete and exhaustive diagnosis. In consequence of its anatomical structure, the membrane stands in very intimate relation to the diseases of the external and middle ear. . . . The surfaces thus become the seat of appearances, which, revealed to us by inspection, permit a conclusion concerning the state of the middle and external ear. . . . The lesions of the middle and external ear, on the whole, furnish the most frequent sources of functional disturbance in the auditory apparatus; and, again, such disturbances are often associated with changes in the membrane. Therefore we find anomalies upon the membrana tympani in the majority of aural patients."

The next chapter is devoted to the *Anatomy* of the membrane, both general and microscopical. Its *relative position* to the *meatus*, its *size, inclination, curvature,* &c., are all accurately described. The membrane is divided into three layers: external, or *dermoid;* middle, or *substantia propria;* and internal, or *mucous.*

Next follows the chapter on *Inspection*, where we have a description of the present mode of examining the membrane. A funnel-shaped speculum and a concave mirror, of four to five inches focus perforated in its centre, are all the instruments necessary for obtaining a well-defined view of the membrane.

The *Normal* appearance of the membrane is next described. The *colour* is considerably modified by the kind of light used in illuminating. That from a clear sky giving a bluish tint; that from an artificial light more of an orange hue. The former is to be preferred in making examinations.

The chief cause of the "cone of light," he considers to be "the inclination of the membrane to the axis of the auditory canal, together with the concavity of the membrane produced by the manubrium. . . . In consequence . . . of the inward curvature of the membrane, . . . its parts undergo such a change of inclination that the anterior portion stands at right angles to our axis of vision, and the light thrown upon it is reflected back to the eye," while that from the posterior portion is thrown upon the anterior wall of the canal and does not reach the eye. The normal condition is thus summed up: "At the anterior upper edge of the membrane we see a whitish prominent point, the short process of the malleus; extending from this downward and backward nearly to the centre of the membrane, a whitish or pale-yellow stripe, the malleus handle, widening out at its lower end into the form of a spatula. In front of, and below the manubrium, we see a triangular reflection, the cone of light, its point at the umbo, its base turned forward and downward toward the periphery; the anterior portion of the membrane, lying between the manubrium and cone of light, generally of a darker gray, and seldom visible as far as the periphery; the portion behind the manubrium, more or less distinctly separated from the posterior upper wall of the meatus by a lighter line, and appearing much larger and lighter, and its colour modified in the manner stated, by the promontory and sometimes by the long shank of the incus shining through the membrane, and by the pocket of Tröltsch with the *chorda tympani*."

Anomalies in the transparency and colour of the Membrana Tympani, are divided into two groups: *general* and *circumscribed opacities.*

Among the first are classed—1. "*Softening* or thickening of the epidermic layer." 2. "Diseases of the dermoid layer." 3. "Lack of transparency in the substantia propria." 4. "Opacities and thickening of the mucous layer." These include all the inflammatory changes, calcareous deposits, and fatty degeneration, and their diagnostic significance and value are clearly marked out. These various changes are very interesting, and are of much importance in the study of aural diseases. The following is the summing up of their diagnostic value: "1. Diseases of the membrana tympani are, for the most part, combinations of the signs of diseases of the external and middle, less frequently of the inner ear. 2. Opacities occur frequently in aural disease, according to the unanimous testimony of authors, and in many cases afford important data for a diagnosis. 3. The fact, however, that analogous opacities occur also in persons with normal hearing, diminishes their diagnostic value not a little. Nevertheless they deserve, in given cases, full consideration; since taken in connection with the other signs, with the nature and course of the case, and the degree of functional impairment, they often essentially facilitate the diagnosis."

Under *anomalies in coherence of the membrana tympani* are considered *perforation* and *rupture*. The former is most generally the result of catarrh of the middle ear; the latter, of external violence. The *cicatrices* that close the perforations when they heal, are always darker than the surrounding membrane, for the reason that they are more transparent and transmit more light than they reflect. The appearance of the *promontory* as seen through perforations is described, and the difficulty in diagnosticating it, sometimes, from a swollen thickened membrane, is confessed.

"*Detachment of the manubrium,*" "fracture of the manubrium," of which he has seen one case and relates another, and "*adhesion of the membrane to the stapes,*" are all noticed in this chapter; and in a note his treatment of catarrh of the middle ear is detailed in full.

Anomalies in the curvature of the membrana tympani. Of these there are but two—1. The outward bulging or *convexity;* and 2. The inward curvature. The first condition is rare, and is generally due to the accumulation of fluid in the cavity of the tympanum, in catarrh of the middle ear. *Abscesses* make circumscribed convexities as do also *granulations* upon the membrane. The second condition is most generally due to obstruction of the Eustachian tube; the air in the cavity of the tympanum being absorbed, there is diminished resistance to the pressure of the air from without, and hence the sinking in. This is an unfavourable sign as regards a permanent cure, implying as it does, generally, a permanent obstruction in the tube. *Circumscribed depressions* may arise from atrophy of a portion of the membrane, or from a cicatrix, both of which offer diminished resistance to the pressure of the outer air.

In speaking of the *abnormal movements of the membrana tympani* he mentions various methods for testing the movements of the membrane; as the forcing of air into the cavity by the catheter, by the new method of his own, and the method of Valsalva: but no mention is made of the apparatus of Seigle, which we consider is far preferable to any of the other methods. This instrument, as is known, consists of a chamber, one end of which is closed by a double convex lens, and to the other end is attached a conical speculum. In the side of the chamber is an opening to which is attached an elastic tube. To use the instrument, we have only to introduce the speculum into the meatus closely enough to be air-tight; the free end of the tube is then taken into the mouth and the air can be exhausted from the chamber by a sucking action, while the movements of the membrane are watched through the convex lens.

Some remarks respecting the "medical jurisprudence" of injuries to the membrane, we think are very appropriate.

The *Supplement* contains—A. "Accumulation of serum in the tympanic cavity; diagnosis and treatment." B. "Method for preventing the closure of artificial perforations of the membrana tympani." It is often necessary to make these artificial perforations, especially in anchylosis of the ossicles, in order that the sound waves may be transmitted directly to the base of the stapes. Marked improvement has followed in many cases where this treatment has been pursued, and it is considered a justifiable operation. Every method that has been hitherto devised for keeping these perforations open has failed, but Dr. Politzer thinks he has at last hit upon the right one. "The means that I have employed for keeping the artificial perforation open consist in the *introduction of a hard rubber eyelet, having a groove upon its periphery, in which the edges of the perforation lie, thus holding the eyelet fast.*" Minute directions for introducing it are given. C. "Double perforation of the membrana tympani;" and D. "Anatomy of the membrana tympani," containing the results of some of the more recent investigations on the subject.

The chromo-lithographs, twenty-four in number, are accurate representations of the normal and most of the diseased conditions of the membrane.

This is a very interesting and a very valuable work, and we can heartily recommend it to the consideration of those who take an interest in aural surgery.

S. M. B.

ART. XXXV.—*Anatomy, Descriptive and Surgical.* By HENRY GRAY, F. R. S. The Drawings by H. V. CARTER, M. D., with additional drawings in the second and later editions by Dr. WESTMACOTT. The Dissections jointly by the author and Dr. CARTER. With an Introduction on General Anatomy and Development by T. HOLMES, Surgeon to St. George's Hospital. A new American, from the fifth and enlarged English edition. With four hundred and sixty-two engravings on wood. Imp. 8vo. pp. 876. Philadelphia: Henry C. Lea. 1870.

THE new edition of this very valuable treatise is in many respects an improvement upon the editions which have preceded it. Those already familiar with the work will be struck at a glance with the more systematic arrangement of the subjects embraced in it. General Anatomy, for instance, has been isolated from the departments of Descriptive and Surgical Anatomy, with which it had been previously incorporated, and now occupies an important position in an elaborate and instructive introductory chapter of eighty-three pages. Much labour has evidently been expended in the preparation of the very recent English edition, of which this is a transcript, and new cuts and a large amount of matter have been added, to keep this useful work thoroughly up to the requirements of the day, and to preserve its reputation as the best exponent of the present state of anatomical science, which the student can consult. The advantages presented in the method of copious illustration by large cuts, abundantly lettered on the block itself, on the very point of interest described in the text, whether it be process, muscle, tendon, artery, or nerve, have long since been recognized by teacher and student alike, and have contributed largely to the wide-spread popularity which this anatomical text-book has attained on both sides of the Atlantic. R. J. D.

ART. XXXVI.—*Prolapsus, Fistula in Ano, and other Diseases of the Rectum, their Pathology and Treatment.* By T. J. ASHTON, Consulting Physician to the Marylebone Infirmary, etc. etc. Third edition. Crown 8vo. pp. viii., 175. London: John Churchill & Sons. 1870.

THOSE of our readers who are familiar with Mr. Ashton's well-known *Treatise on the Diseases, Injuries, and Malformations of the Rectum, etc.*, which has reached a fourth edition in England and a second in this country, need not to be told that anything from our author's pen upon the important subject of rectal diseases will be full of useful, and practical information.

The present small volume (which, as may be seen from its title page, is itself in its third edition) is designed, as we learn from the preface, to give to busy practitioners "a practical description of those affections of the rectum which by their frequency more constantly claim attention, apart from those of more rare occurrence." After a few pages devoted to introductory remarks, in which our author refers to the wide prevalence of rectal diseases, the importance of the surgeon who undertakes their treatment being not a *specialist* but an accomplished *general* practitioner, and the use of rectal specula, enemata, and perineal douches, Mr. Ashton enters at once upon his subject, considering in succession Prolapsus of the Rectum, Fistula in Ano, Hæmorrhoidal Affections, Fissure of the Rectum, and Malignant Diseases of the Rectum. Mr. Ashton's remarks upon each of these subjects are eminently judicious, and the treatment advised such as the best surgeons of the present day are in the habit of recommending. We know of no volume which gives in such convenient form and in such condensed manner a satisfactory account of the pathology and treatment of the more frequent rectal diseases.

Here we would be glad to stop; but it is our duty to point out to our readers that this whole volume is extracted, almost verbatim, and with but a few trifling additions, from the author's larger work, which was referred to in our opening paragraph. This plan of making two books out of one is convenient, and may be advantageous in a pecuniary point of view, but is scarcely fair to the purchaser, unless it be much more distinctly stated in the preface than is the case in this instance, that the new book is in fact but a part of the old one. As to the *originality* of the old one, we would invite our readers to refer to the Bibliographical Notices of the *second* and *fourth* editions, which appeared in the numbers of this Journal for April, 1858, p. 487, and Jan. 1864, p. 225. We regret to be obliged to say that Mr. Ashton has not profited by the animadversions of our distinguished predecessors in the critical department of this Journal, and gives in the volume now before us even less indication of his obligations to Dr. Bushe's monograph, than in previous issues of his work. Perhaps Mr. Ashton thinks that by having continuously used Dr. Bushe's brains without acknowledgment for sixteen years, he has acquired a right (by what our legal brethren call "prescription") to go on doing so for an indefinite period. J. A., JR.

ART. XXXVII.—*Reports on the Progress of Practical and Scientific Medicine in different parts of the World.* (For the year beginning June 1, 1868, and ending June 1, 1869.) Edited by HORACE DOBELL, M. D., Senior Physician to the Royal Hospital for Diseases of the Chest, &c. &c.; assisted by numerous and distinguished coadjutors. 8vo. pp. 645. London: Longmans, Green, Reader, and Dyer, 1870.

A SECOND series of labourers will soon be required to prepare periodical epitomes of the rapidly multiplying Medical and Surgical Year Books, Abstracts, and Compendiums. The present large volume is, however, constructed on a new basis, the author's somewhat bold and very extensive plan being "to bring together in the English language original and independent reports from all parts of the world, written by distinguished men, resident in the countries which they represent." This method of proceeding will doubtless secure papers much more fresh, full, and attractive, than such as can be furnished by the writers of any one nation. The chief practical difficulty will be found in the great accumulation of material, and in the necessity of repeating many statements of essentially the same character. Dr. Dobell averts, at the outset, any close criticism of this first year's "Reports," by asking his readers to accept it as merely "a fragmentary hostage of the next." It was only in December, 1868, that he designed the work, and the subsequent period was too short for completing the necessary correspondence with remote regions. There is, therefore, a marked disproportion in the scope of the several sections. America is represented by only twenty-two pages, although the author was "particularly desirous" to obtain many more. China and India supply a few notes, the pledges of more numerous ones in subsequent issues. The abstract from Great Britain and Ireland occupies one-third of the volume, and those from Germany and France one-fifth. The last named, from the pen of Prof. Villemin, is particularly valuable. There is an interesting contribution from Iceland, chiefly upon the endemic echinococcus disease; and one from Denmark and Sweden, by Dr. Rasmussen. Heather Bigg presents a complete and very readable account of "Mechanical Appliances, Instruments, and Inventions." The subject of "Climate" receives extended notice in a paper on "Change of Climate in the treatment of Chronic Diseases," and in others having special reference to Minnesota, Riviera, Algeria, and the West Coast of Africa. Articles of considerable length appear to be included in Dr. Dobell's plan, and reference is made to one upon tubercle by Dr. Andrew Clark, which was not ready in time for publication. Nearly all the year's work on this subject has, however, been recounted in the reports from different countries.

Notwithstanding the somewhat disjointed, unsymmetrical, and heterogeneous composition of these "Reports," due, in great part, to the causes already mentioned, they will be found very pleasant and instructive. The editor deserves credit for his energetic enterprise, and a just measure of the real value of the work cannot be made until he and his able collaborators have completed their task according to its original conception. E. R.

ART. XXXVIII.—*A Physician's Problems.* By CHARLES ELAM, M.D., M.R.C.P. 12mo. pp. 400. Boston: Fields, Osgood & Co., 1869.

THE object of Dr. E. is to present in a popular form the results of the most recent investigation of certain matters that deeply concern the happiness and welfare of men. "The book," he says, "is a contribution to the natural history of those outlying regions of thought and action, whose domain is the 'debatable ground' of brain, nerve, and mind." The fruits of modern research are thus made accessible to all. and enter into the common stock of popular knowledge. Books of this kind are among the wants of the time, for the great ends of science are lost so long as its results are confined to journals and treatises devoted exclusively to science, and unknown, of course, to the general mass of readers. Thus, for instance, much has been learned, during the last twenty-five years, respecting the laws of natural heritage, and though this information is of incalculable importance in the due regulation of the social relations, yet it is but little known beyond the pale of the medical profession, and not very extensively there. In performing his task, the author has avoided the common fault of either going above or below the comprehension of the average mind, although in leaving so many of his quotations in the original Latin, Greek, or French, he has presumed too much on the acquisitions of his readers. It is always well to translate for the benefit of the "country members," who, in these days, greatly outnumber all others. He has not always borne in mind the sacred obligation resting upon every scientific writer of strictly verifying his statements of facts. Thus, he states that "of the lunatics confined in asylums in the United States, there are 7520 who have become so entirely owing to this 'spirit-faith.'" This is one of those Munchausen stories, like that which went the rounds of the newspaper press, a year or two ago, of twelve or fifteen hundred young women of the first families in New York applying for admission into the Binghampton Asylum for Inebriates, and that of one-half or more of the inmates of the insane hospitals of France being political prisoners who never had been insane—stories that only enlarge our conceptions of the incalculable extent of human credulity. The truth is, that the inmates of our insane hospitals, all told, little exceed the number of those alleged to have been made insane by spiritual manifestations.

We cannot close this notice without entering our protest against the awkward practice followed by Dr. E. of placing his citations at the end of the book, instead of the bottom of the page. How a writer can deliberately subject his readers to the annoyance of interrupting the course of thought every few minutes, in order to hunt for a citation in some other part of the book, is quite inconceivable.

With these trivial abatements, the book is one which scientific men will find convenient for reference, and which intelligent persons who make no pretension to science will find it profitable to read. Messrs. Fields, Osgood & Co. have done their part by investing it with those attractions of print and paper which characterize all their publications. I. R.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *On the Functions of the Trachea in the Act of Respiration.*—Some interesting observations on this point by Dr. LEVEN, appear in the just published part of Dr. Brown-Séquard's *Archives de Physiologie.* Dr. Leven remarks that up to the present time most physiologists have regarded the trachea as an inert conduit for the passage of air. Nevertheless, sudden death has occurred on various occasions during the operation of tracheotomy; and fractures of the larynx have frequently induced death, without any exact physiological explanation ever having been advanced. His observations, however, have led him to form certain conclusions to the effect that the trachea is not an inert tube, but that it is intimately associated with the medulla oblongata in its function through the pneumogastric nerves, permitting the passage of air, and therefore, also, the entrance of oxygen, which intermittingly excites the periphery of the pneumogastric nerves, and maintains the medulla oblongata in a constant state of activity. He grounds these conclusions on the facts: 1. That a ligature applied around the trachea which effects a slight constriction of its calibre, instantly retards the respiratory movements. 2. A strong ligature, suddenly applied, so as altogether to occlude the passage of air, stops at once both respiration and circulation; sudden death follows, preceded only by one or two convulsive efforts. 3. It is through the pneumogastric nerves that the impression received by the trachea is conveyed to the medulla. 4. This is proved by the fact that if the pneumogastrics are divided before tying the trachea, the application of the ligature does not produce sudden death. The animal then dies asphyxiated by carbonic acid. 5. Moreover, if after incompletely ligaturing the trachea, the coma of carbonic acid be induced, the respiratory act can still be retarded by tightening the ligature, or may be brought to a sudden stop by occluding the calibre of the tube. 6. These experiments have a direct bearing on various pathological conditions, and upon asphyxia in general, teaching us —7. That we should not confound asphyxia produced by carbonic acid with asphyxia caused by strangulation, nor either of these two with the asphyxia of submersion, since the pathogeny of each is different. 8. Although doubtless the presence of carbonic acid in the blood is superadded as a cause of death, in the asphyxia of strangulation and submersion it is only a subsidiary and secondary cause. 9. Death by hanging is due to compression of the trachea, from the excitation of the pneumogastric, consecutively to irritation of the bulb. 10. Death by drowning is due to the fact that, the trachea no longer receives the oxygen of the air, and hence the pneumogastric is no longer excited; the medulla oblongata consequently remains passive, and life is suspended by the arrest of the circulation and respiration, after the animal has

made three or four respirations, induced by the oxygen still contained in the bronchi. 11. Thus it would appear that the asphyxia produced by hanging and by drowning rather merits the name of syncope, if the distinction between these two clinical terms could be preserved, and if the greater number of supposed cases of asphyxia were not cases of true syncope of a different kind. Asphyxia by hanging is due to an irritation of the bulb; that by drowning to inertia of the bulb.—*Lancet*, March 5, 1870.

2. *Physiology of the Blood.*—In a recent paper by M. SAVOTTI in the *Centralblatt*, he describes a phenomenon of great interest, and hitherto unobserved—the entrance of entire pigment-cells into the channels of the capillaries and smaller veins of the web of the frog's foot through their walls. This is the converse process to that exit of white corpuscles of the blood through the walls of the bloodvessels, which has attracted much attention, and as to which the researches have been brought under the notice of our readers. M. Savotti uses a dilute solution of sulphuric acid—2 per cent. The cells contract and become aggregated around the minute vessels. Then, putting forth processes, one pierces the wall of the vessel and enters its cavity. The whole cell sometimes is slowly drawn in, and after remaining adherent for a time to the wall of the vessel, gradually moves onward with the current of blood. The observation is one of great physiological and pathological interest. It will of course require verification.—*Brit. Med. Journ.*, May 28, 1870.

3. *Regeneration of Nerve-tissue.*—VOIT has recently proved the reproduction of the cerebral tissue in the pigeon, and the coincidence of this reproduction with almost complete renewal of the cephalic functions. MM. Masius and Van Laer, Professors in the University of Liege, deduce from recent experiments—detailed at length in the current number of the *Monthly Microscopical Journal*—that the spinal cord in the frog can recover rapidly a loss of substance which has taken place in its own tissues, and repair its primitive anatomical and physiological properties.—*Brit. Med. Journ.*, May 7, 1870.

MATERIA MEDICA, GENERAL THERAPEUTICS AND PHARMACY.

4. *Physiological Action of Hydrate of Chloral.*—An extensive series of experiments have been instituted by the Medical Officers of the Royal Infirmary, Edinburgh, for the purpose of determining this point; and the conclusion at which they arrived is, that in healthy persons, even after a good night's rest, if the drug be given in doses of twenty to twenty-five grains, in the majority of instances, a condition allied to natural sleep is produced, accompanied by no injurious effects, provided they remain quiet and undisturbed in bed. On the other hand, if moving about, exposed to excitement, or carrying on their usual duties, the same dose, while it occasionally produces a giddy or even slight drowsy sensation, rarely induces a special desire for sleep.—*British Med. Journ.*, April 30, 1870.

Dr. A. M. ADAMS asserts (*Glasgow Med. Jour.*, May, 1870), that chloral lowers the action of the heart and reduces the temperature of the body when such action and temperature are above the standard of health, but in cases of feeble circulation he has found it to act as a gentle stimulant, restoring and equalizing the circulation throughout the outer surfaces of the body and extremities. The breathing is quickened for the first two hours, or thereabouts, after the successful administration of chloral, but it soon falls to what we are accustomed to see in natural sleep. The sleep of chloral is more allied to nature than that induced by any other drug, and comes on with much greater speed and certainty.

Dr. WM. A. HAMMOND regards it as conclusively shown by his experiments on animals, that "the first effect of the hydrate of chloral is to cause congestion of the cerebral bloodvessels, and that subsequently it induced directly the opposite condition. With a small dose the latter effect is not reached, congestion only being produced."—*N. Y. Med. Journ.*, February, 1870.

Dr. J. HUGHES BENNETT has been led by his experience to indorse the statement of Liebreich, that chloral causes sleep without exciting the pulse or respiration.—*Practitioner*, May, 1870.

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5. *Chloral as an Hypnotic.*—The Physicians and Surgeons of the Royal Infirmary, Edinburgh, after extensive trials with the hydrate of chloral, have arrived at the conclusion that it is a most important and valuable addition to our list of sedatives and hypnotics. It is, they consider, "perhaps the purest hypnotic and sedative we possess, its administration being followed, in most cases, by beneficial results, and comparatively rarely by injurious effects; also, that for these purposes it may be given with advantage in all cases where sleep is abnormally absent, and in diseases or injuries where any excitement or irritation of the nervous system exists. Its advantages as compared with other narcotics, such as opium, seems to be briefly as follows: 1. It is perhaps more speedy and more certain in its action and more prolonged in its effects; 2. It is less dangerous to children; 3. It is followed, as a rule, by no bad effects; the appetite is not impaired; the tongue is not furred; the excretions are not arrested.

"While in the majority of cases the results of chloral are satisfactory, the fact must not be concealed that, occasionally, unpleasant consequences follow its administration. In upwards of fifty observations, when forty grains were given—the progress of all of which we ourselves had an opportunity of following out—in no less that seven the patients were greatly excited, four of them, in addition, being wildly delirious shortly after taking the medicine. This temporary delirium, although somewhat alarming at the time, passed off in all cases in the course of two hours, accompanied by the most profuse diaphoresis. In this number, about a dozen were afflicted with headache more or less severe, which, however, was also transitory.

"Other observers in the Infirmary, after giving chloral largely, have not met with these distressing symptoms—at least, not to so great an extent."—*British Med. Journ.*, April 30, 1870.

Dr. J. HUGHES BENNETT states (*Practitioner*, May, 1870) that, in moderate doses, it produces natural sleep; that in a majority of cases it is not a narcotic but pure hypnotic, and that he has not witnessed from it the ill effects so common after the administration of opiates.

Dr. A. M. ADAMS speaks (*Glasgow Med. Journ.*, May, 1870) in equally favourable terms of its value as an hypnotic. He says "as an hypnotic in affections of the head and nervous system, it dwarfs every other known remedy of its class, and fills a blank in medicine which has long been felt and deplored."

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6. *On the Production of Rapid General Anæsthesia for Short Operations*—Dr. B. W. RICHARDSON made a communication on this subject to the Medical Society of London (March 14, 1870); and at the same time introduced a new anæsthetic compound for that purpose. He began by explaining that, within the past two or three years, a practice had been followed of producing quick insensibility which should be followed by equally quick recovery. Two agents had been employed for this purpose: (*a*) nitrous oxide gas; (*b*) bichloride of methylene. Admitting that the principle of producing quick insensibility had a practical intention and usefulness, Dr. Richardson said he had an objection to the methods which, up to the present time, were adopted for carrying the principle into practice. His objections to nitrous oxide gas were as firm as ever. He held still that the employment of an agent which excluded all atmospheric air during inhalation, which produced the most perfect asphyxia, which required for its administration costly and troublesome apparatus, and which, if administered beyond a given period, even for a few seconds, must of necessity kill, was a bad agent for anæsthetic administration—was, in fact a rude and vulgar process, retrogressive in science. Respecting bichloride of methylene, though

it was hard to speak against any application of a remedy which he, the author, had introduced, he must be candid and say that he was not favourably impressed with the application of bichloride for *quick* general anæsthesia. That it was marvellously rapid in its action was true, that it answered the end had in view was true, and that it had now been used for rapid inhalation an immense number of times was also true; but these facts could not conceal the further and all-important fact that the bichloride of methylene belonged to a dangerous family of chemical substances, and could not therefore be played with without risk. It had been extolled as being safer than chloroform; and that was allowed, for, as it contained an equivalent of chlorine less than chloroform, it was materially safer. But the safety was relative, not absolute. Under these impressions the author was led recently to review experimentally the action of the whole of the more promising anæsthetic fluids and vapours, including chloride of methyl, bichloride of methylene, chloroform, amylene, hydride of methyl, ethylic ether, methylic ether, and some others, which were given on a table placed before the Society. The result was that he had decided in favour of *methylic ether* for rapid anæsthesia. The anæsthetic properties of methylic ether were first discovered by Dr. Richardson in 1867, and the substance has been reported upon by him in two reports to the British Association for the Advancement of Science. On the 20th of May, 1868, he inhaled it for the first time himself. Dr. Sedgwick and Mr. Peter Marshall administered it to him to complete insensibility. He was narcotized completely in one minute, was unconscious in seventy seconds, and recovered almost instantaneously without nausea, headache, or any other unpleasant symptom. From that time the author has been in the habit of narcotizing occasionally with methylic ether, and recently with marked success. The ether is made by digesting one part of pure methylic alcohol with two of strong sulphuric acid. The mixture is heated, and the methylic ether, which passes over as a gas, is subjected to frequent washings in a strong solution of potash. The ether remains as a gas even below zero; it has an ethereal odour; it is chemically an oxide of the radical methyl; and its vapour density is 23, taking hydrogen as unity. The strongest objection to methylic ether is that it is a gas; but, happily, that difficulty is to a large extent overcome, the gas being very soluble in various substances; water takes up 37 volumes of the gas, yielding an ethereal fluid of a very pleasant taste; pure ethylic ether and alcohol take up over 100 volumes, and chloroform and bichloride of methylene nearly as much. For practical purposes, the author prefers absolute ethylic ether of specific gravity 720, and boiling point of 920° Fahr., as the solvent. The ether is charged with the gas at a temperature of 32° Fahr., and the compound is at once bottled and firmly corked down. It should be kept for a time before being used, the process of keeping producing a comparatively stable compound. In using this compound, which he proposes to call methyl-ethylic ether, the author at present employs the simple mouthpiece invented by Mr. Rendle, and made merely of leather. He is adding to this a reserve bag, in order to conserve the ether. From one to two drachms may be put into the inhaler for quick narcotization. Dr. Richardson next described cases in which the methylic ether had been administered to the human subject for the extraction of teeth. In eleven cases, the whole operation, from commencement of the inhalation to the complete recovery, was under three minutes; in several cases, one minute was sufficient; while in two cases forty-five seconds sufficed. In no case was there spasm, syncope, or asphyxia during inhalation, or any after-nausea, and in all cases there was a semi-consciousness, so that the patients did what they were bade to do, remembered what had been done, and yet were not conscious of pain. The author next described the action of methyl-ethylic ether on the nervous centres, comparing it with chloroform and other anæsthetics containing chlorine. He showed that this ether produced no excitation of the nervous centres which supply the vascular system, as chloroform does, and that, consequently, there was absence of muscular spasm, of contraction of bloodvessels, and of syncopé from fatal contraction of the heart. When it was carried to the extent of arresting life in the inferior animals, it produced death by paralyzing the organic nervous centres. This extreme result was preceded by convulsive action similar to that which is seen in death from hemorrhage, the convulsion being due to the absence of arterialized blood in the muscles. So well, however, did the heart retain its power, that in one case, in a lower warm-blooded animal, a guinea-pig, the respiration returned *spontaneously* in pure air, four minutes and forty-five seconds after it had ceased. No fact could more definitely speak in favour of the safety of the agent. In conclusion, the author said that as he had confined himself this time to rapid anæsthesia for short operations, his remarks must be taken as bearing on that subject only. He had introduced methyl-ethylic ether as the readiest and best agent he knew of for the purpose described. It was better than nitrous oxide gas, because it allowed air to be given with it, and did not asphyxiate. It was better than bichloride of methylene, because it did not produce muscular spasm and syncope. At the same time, he did not consider it as perfect, nor should he consider general anæsthesia perfected until he, or some other observer, should discover an agent that will destroy sensibility without interfering at all with organic muscular life, volitional power, or consciousness. Methylic ether approached this perfection, though it did not touch it, and it encouraged perseverance in experimental research. For these reasons it was worth the attention of the Society.—*Lancet*, April 2, 1870.

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7. *Experiments of the Indian Government on the Therapeutic Effects of the Cinchona Alkaloids, Quinia, Quinidinia, Chinchonidinia, and Chinchonia.*—The Medical Commission appointed by the Indian Government to investigate the relative value of the above-named four cinchona alkaloids report favourably, as will be seen from the following extract:—

"It has been shown that the total number of fevers treated by the new alkaloids and chemically pure quinia is 2472, of which only 27 are stated to have failed, and of these no less than 11 were at Labuan. The failures, it will be observed, are but little in excess of one per cent. of the aggregate number treated; which is certainly a most favourable result, especially when it is known that many of the patients were saturated with malaria and ill-fed, as evidenced by their enlarged spleens and emaciated condition."

Opinions differed (as might be expected amongst so large a number of medical men) as to the exact comparative value of the different alkaloids; but the following extract from the general conclusion of the Commission on the subject is interesting.

"Dr. Jackson's experiments extended over no less than 564 cases. 'These alkaloids, are all,' he says, 'possessed of highly antiperiodic properties in malarious fever. They were given in the above number of cases without one fatal termination. It is true that the fever, though generally prevalent among the prisoners, was of a very mild type; the fact, however, remains that the average duration of treatment was about six days [here Dr. Jackson omits to reckon the large number cured by single doses], and such a result can only be accounted for by allowing the very marked specific effects of the alkaloids administered. I much doubt if such a result could be obtained by the administration of any other of the well-known antiperiodics—always excepting the *facile princeps* sulphate of quinia itself.'

"Dr. Fogo writes: 'In small doses all the alkaloids produce the same therapeutical effects—that is, as tonics, antiperiodics, and antineuralgics. Hypodermically and internally, they have proved successful. In large doses they are all equally energetic, and produce their effects rapidly. They have been successfully used as antiperiodics and febrifuges. We have now three alkaloids, in addition to quinia, all of great power. Quinia appears to be the most active and certain in its effects, and, from long-established reputation, it is not likely to be superseded by any of the other alkaloids, at least not until they become more known. In many constitutional peculiarities, when quinia cannot be borne, these alkaloids will be found good substitutes, and they can all be substituted for each other.'

"Most of the medical officers employed in using the alkaloids seem fully impressed with the belief that they are equally, or very nearly, as efficacious as ordinary quinia.

"In regard to the relative effects of the three new alkaloids, and with them chemically pure sulphate of quinia, the evidence derived from their use shows that, with the exception of sulphate of chinchonia, as already stated, they in a remarkable degree so closely resemble each other in therapeutical and physiological action as to render distinctive description of little or no practical utility.

"In reviewing the whole of the operations for testing the therapeutical effects of the chinchona alkaloids, the result confirms generally the favourable opinion expressed by the Commission last year, and likewise conclusively establishes beyond doubt that ordinary sulphate of quinia and sulphate of quinidia possess equal febrifuge power; that sulphate of chinchonidia is only slightly less efficacious; and that sulphate of chinchonia, though considerably inferior to the other alkaloids, is, notwithstanding, a valuable remedial agent in fever.

"There is no longer room to doubt that the alkaloids are capable of being used with the best effects in India" (and elsewhere). "They have been compared with quinia—a drug which possesses more than any other that can be named the confidence of medical practitioners, and have been found by more than the observer to supplement this sovereign remedy in some of its points of deficiency."—*Lancet*, March 19, 1870.

8. *Bromide of Potassium and its Impurities.*—Mr. ARTHUR E. DAVIES has given (*Lancet*, May 21, 1870) the analyses of ten samples of bromide of potassium purchased at different places. These analyses show that bromide of potassium, as generally dispensed, contains a considerable amount of impurity, ranging in the samples which he has examined from 13¾ per cent. to 31 per cent. The impurities consist of chloride and iodide of potassium, sulphate and bromate of potash, and moisture. The chloride of potassium and the sulphate of potash are apparently always present, the former generally in considerable quantity. Bromate of potash, though not always, seems to be very frequently present. The iodide is less commonly met with; it was found in only four of the ten samples which he examined. Caustic and carbonate of potash were not detected in any of the samples.

The impurities referred to appear to be derived from two sources—impurities in the material used, and imperfect carrying out of the process of preparation.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

9. *Pathology of "Morbus Addisonii."*—In the number for February, 1870, of the *Deutsches Archiv für Klinische Medicin*, there is a somewhat elaborate communication, by Dr. RISEL, of *Halle*, on that form of disease attended by a bronze discoloration of the surface, to an acquaintance with which we were first introduced by Dr. Addison, of London, who referred it to a diseased condition of the supra-renal capsules. The communication of Dr. R. embraces a series of very interesting and instructive cases; from the phenomena exhibited during the course of which, and their final result, the writer believes that certain leading propositions are established, not in strict accordance with the views of leading English pathologists.

The effects which are found to result from the extirpation of the supra-renal capsules in experiments made on the lower animals, as well as the histories of a long list of cases occurring in the human subject, with their autopsies after death, establish the fact beyond the possibility of a quibble, that, in man, the disease of the supra-renal capsules, so long as it does not transcend the ordinary pathological limits, not only exerts no disturbing influence on the organism at large, but may occur and run its course without giving rise to any symptoms whatever.

The symptoms, ordinarily described as diagnostic of the "Morbus Addisonii," are the result of pathological processes, complicated with others that have taken place in the supra-renal capsules, which are often, it is true, nearly obscured by tubercular deposits, causing disturbed action of the nerves surrounding the arteria cœliaca—of the plexus cœliacus, and of the semilunar ganglion, as also, probably, of the plexus mesentericus superior.

The diseased condition of the solar plexus is manifested chiefly by defective action in its vasomotor fibres, to which is due an overfulness of the vessels of the lower portion of the abdomen, and a corresponding diminished fulness of those above, except only where they border upon their terminal portions. This abnormal distribution of the blood, in proportion to its extent, presents more or less resemblance to the phenomena observed in cases of collapse and of anæmia of the nervous centres. The commencement of symptoms of cerebral anæmia is probably, in some instances, obscured by the previous development of a secondary and but little understood alteration in the blood, and to which is very probably to be assigned the bronzed discoloration of the skin. By far the greater number of the cases of the so-called Addison's disease are, therefore, judging from their usual chronic course, however extensively the supra-renal capsules may be involved, complications of the disease of these bodies with disease of some other organ; the nature and extent of which complications, in each case, may be made out in the progress of the case, or only by an examination after death. D. F. C.

10. *Nature, Origin, and Treatment of Hysteric Diseases.*—Dr. Robert Lee read an elaborate paper on this subject before the Royal Med. and Chir. Society, (March 8, 1870), in which he gave an accurate report of upwards of two hundred cases. The author drew the following conclusions from these cases. In none did the disease occur before the age of puberty; and in few after the middle period of life. In few of the cases recorded were the functions of the ovum and uterus in a perfectly healthy state. In the greater number, there was amenorrhœa, dysmenorrhœa, menorrhagia, leucorrhœa, or a morbid state of increased or diminished sensibility in the uterine organs, without any organic disease. The author added that, in the greater number, there was incurable sterility; and he stated that he had been led to conclude from the symptoms observed in these cases, that hysteria originates in the ovum, on which menstruation depends, in which conception takes place, and to the influence of which are to be attributed the development of the female pelvis and mammæ, and all the peculiarities of the female constitution. The result of the author's dissections of the renal ganglia and nerves, and those of the ovum, now in the museum of the University at Cambridge, were given; and from them an explanation was advanced of the cause of the discharge of a great quantity of clear urine after the hysteric paroxysms. Other seats of hysteria were then described, with a letter on the subject from Mr. Joseph Swan. The paper concluded with a summary of the different remedies employed in the two hundred cases; the last two of these methods of treatment were clitoridectomy and cutting away the coccyx.

11. *Convulsive Sneezing, and its Relationship with Migraine, Bronchial Asthma, and Hay-Fever.*—In the *Archiv der Heilkunde*, for 1869, Dr. H. Ferber gives the detailed history of the case of a female who, during childhood, had suffered from occasional attacks of migraine, with vomiting; subsequently she was affected with facial "*tic douloureux*," which was always especially severe at the period of menstruation, which was generally profuse, and also during the later months of pregnancy. The especial seat of the facial pain was in the course of the supra-orbital nerve. In conjunction with the facial pain there were indications of local hyperæmia, injection of the conjunctiva, some œdema of the upper eyelid, with a constant involuntary flow of tears. Upon the decline of the facial pain, the patient experienced severe, uncontrollable paroxysms of sneezing, with a profuse discharge from the nostrils. Subsequently the paroxysms of sneezing recurred, without premonition, as an involuntary convulsive sternutation, almost every morning shortly after rising. Occasionally the patient was affected with eructations, gaping, and asthmatic breathing.

From this case, compared with others of a somewhat similar character upon record, Dr. F. concludes that there exists certainly an absolute *causative* relationship between sternutation and certain disturbances of circulation in the lower pelvis, evidenced in women by anomalous menstruation, and in men by painful hæmorrhoids.

The same relationship exists between certain other affections, which have been also shown to have a near relationship to convulsive sneezing. Especially is this the case with migraine, which in its leading symptoms exhibits this relationship to a considerable extent, as Dr. F. has attempted to show by a careful comparison of the symptomatology of the two. Cases are not unfrequently met with on record where the two diseases occurred simultaneously in the same patient. There is also a peculiar form of bronchial asthma in which almost the same prodromata are to be observed as in cases of convulsive sneezing, the same dryness of the nasal mucous membrane and that of the throat. As in the attack of migraine the paroxysms often terminate upon the occurrence of vomiting, so by the administration of an emetic an attack of convulsive sneezing or of bronchial asthma will be shortened. Dr. F. further shows that the course, symptoms, and etiology of the hay-fever are in accordance with those of the so-called migraine. He therefore concludes that convulsive sneezing is not of itself a special form of disease, but simply a symptom attendant upon any disturbance of action in a certain portion of the nervous system, most probably an irritation of the par vagum nerve, in the same manner as the diseases closely related to it, such as migraine, dry asthma, and hay-fever. Dr. F. supposes that the convulsive expiration through the nostrils is dependent upon a clonic spasm of the bronchial muscles, while in cases of dry asthma the spasm of these muscles is tonic. We cannot follow Dr. F. in his exposition of the physiological deductions upon which he bases his views as above. The connection of the several affections just referred to with the supposed disturbance of the circulation within the pelvis, Dr. F. seeks to explain by a change in the flow of blood through the venous system, causing an accumulation to occur in certain vessels. When this occurs within the nostrils, the vagus nerve is roused by reflected irritation.—*Centralblatt f. d. Med. Wissensch.*, April, 1870. D. F. C.

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12. *Remarkable Disturbance of the Heart which occurs in Renal Disease.*—Dr. WILKS brought to the attention of the Clinical Society of London some cases illustrating the remarkable disturbance of the heart which often occurs in renal disease, more especially when this is of the acute form. During the late prevalence of scarlatina, and the succeeding nephritis, he had met with several cases of the kind where the patient was seized with a sudden and violent palpitation of the heart, accompanied by all the usual distresses resulting from disturbance of the heart's action. The same symptoms might be observed in chronic renal disease, but to a less degree. Knowing that acute inflammation of the heart may arise in the course of scarlatina or nephritis, he had always been on the watch for its occurrence, but in the present class of cases the disturbance of the heart's action subsided after a few days without leaving any trace of an inflammatory process; only in one case did death occur. He believed, therefore, that the cardiac disturbance was of nervous origin, and was a symptom of blood poisoning or uræmia. As regarded treatment, Dr. Wilks had seen most of the cases in consultation, and thus different methods had been adopted. In nearly all stimulants had been administered in consequence of the fears of momentary stoppage of the heart's action. Digitalis had certainly been of no avail. In one case, henbane appeared to check the heart's action. His own opinion was, that the condition named being a result of uræmia must be treated after the ordinary manner by diaphoretics, purgatives, etc.—*British Medical Journal*, March 26th, 1870.

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13. *Croupal Bronchitis terminating favourably.*—In the February number (1870) of *Deutches Archiv f. Klinische Med.*, Dr. ROTH, of Einerscheim, relates a rather infrequent case of what he denominates *Croupal Bronchitis*, with a spontaneous favourable termination. A small, weakly, anæmic female,

34 years old, regularly menstruating in the intervals of her several pregnancies, suffering from an attack of chronic bronchial catarrh, was attacked, on the last day of July, 1869, with severe fever, loss of appetite, and pain in the head, with much cough. The patient viewed this attack as merely an aggravated paroxysm of her almost habitual catarrhal complaint. She did not confine herself to bed, but, on the contrary, she persisted, notwithstanding the intense dyspnœa, to follow her daily occupations not merely within doors, but abroad in the fields also. Soon, however, the true character of the attack developed itself, and for weeks, every two or three days, the patient was seized with a paroxysm of convulsive cough, and the most intense dyspnœa, amounting to a sense of strangulation, which was only relieved by the discharge, by the cough, of roundish white lumps of fibrinous matter, sometimes discoloured with blood, which left in the mouth a sweetish taste. Placed in water, these lumps became unfolded into a bundle, as it were, of very fine fibrinous bronchial exudations, floating in the midst of the water, varying in size from a tolerably thick cylinder to the finest sewing silk. In the second week this fibrinous discharge, to a greater or less extent, took place two or three times a day, for three consecutive days, then only every second or third day, until, finally, at the termination of three weeks, the discharge ceased entirely; and this without the patient having taken any other medicine than a glassful of infusion of ipecacuanha when first attacked.

The patient recollects that two years previously she had a similar attack, which, after eight days' continuance, also disappeared spontaneously.

A physical exploration, during the disease, and immediately after the expulsion of the fibrinous masses, gave the usual indications of dry bronchitis, with tightness of the respiratory movements, particularly on the left side, while on the right side the respiratory murmur was greatly diminished. The summits of the lungs were fully permeated by the air. D. F. C.

14. *Intermittent Fever Latent for Several Months.*—Dr. W. Braune, in the *Arch. f. Heilkunde*, 1869, relates the cases of eleven persons, visitors at Baden, who had remained on the island during the autumn of 1868, and of whom two were attacked whilst on the island with intermittent fever, but the other nine not until the ensuing spring, some six to nine months subsequently. The patients were all in good circumstances, and resided in different localities—Leipzig, Halle, Liegnitz, Atteburg, etc.—in which localities, at the time the persons referred to were attacked, intermittent fever did not prevail, or only in a few sporadic cases, and neither of the parties had before experienced an attack of the fever. It is evident, therefore, that the disease in all of them was the result of malarial poisoning contracted during the autumn they had remained on the East Freizland Island, where, after a very hot summer, there was experienced a great scarcity of pure water fit for drinking. That a period of incubation of many months, in cases of malarial poisoning, is by no means so rare an occurrence as Griesinger and others have supposed, is proved by observations collected by Pfeiffer in the army of Weimar, and published in the *Jeniaschen Zeitschrift*, 1868. On two occasions—namely, in 1849 and 1867—there occurred among certain divisions of the troops an epidemic of intermittent fever, which in each case must have been due to exposure to malaria during the autumn of the preceding year. D. F. C.

15. *Aphasia.*—Dr. O. Berger (*Wien. Med. Wochenschr.*, 1869) refers to two cases of aphasia, which occurred in a mother and daughter, and in both lasted only a very short time. In the elder female the attack came on suddenly in the evening of a day during which she had suffered from slight symptoms of dyspepsia. With perfect consciousness of the proper word she desired to use, she found herself unable to express it correctly, uttering instead of it sounds the most remote from the word intended. The aphasic attack in the daughter was in all respects similar, being also the result of dyspepsia. Dr. B. refers the aphasia in both these cases to the occurrence of temporary hyperæmia of the brain.—*Centralblatt f. d. Medicin. Wissenschaft.*, April, 1870. D. F. C.

16. *Hemiplegia in Children.*—Dr. FINLAYSON read a paper on this subject before the Manchester Medical Society, February 2, 1870. The following notes indicate the sequence of the symptoms: CASE I. Girl, aged 2. General convulsions were followed by convulsions of the left side, lasting five hours; very complete paralysis of the left limbs and of the left cheek; speech was a little impaired; aspect pallid; treatment by tonics and Faradisation was followed by almost complete recovery in about three months. CASE II. Boy, aged 8. There were coldness and loss of power in the right limbs, with some rigidity of the flexors of the arm; slight paralysis of the right side of the face; the head was slightly bent to the right; slow pulse, but no other cerebral symptoms. He was subsequently reported to have died suddenly from convulsions. CASE III. Girl, aged 7. There was a droop of the left eyelid, followed by choreic tremors, chiefly of the right limbs, and by considerable loss of power on the right side. She had vomiting, diarrhœa (followed afterwards by constipation), headache, and great fretfulness. Subsequently the tongue became protruded to the right, and still later there were inequality of the pupils and left external strabismus. Death occurred apparently from arrest of the respiration. *Autopsy.* A large tumour was found above, slightly in front of the left half of the pons Varolii, with surrounding softening; no tubercles. CASE IV. A girl, aged 2⅓, had a sudden fall (apparently from a fright); no loss of consciousness; very complete paralysis of the right limbs and right side of the face; speech was lost; intelligence was apparently fair. Her face was flushed, and there was general fever; the paralyzed limbs were warmer than the others. Pulmonary congestion occurred; death in four weeks. *Autopsy.* There was capillary hemorrhage on the brain (with adjacent softening), above and to the left of the left crus of the cerebrum, and lobular pneumonia. CASE V. A boy, aged 4, had languor and feebleness, with slight febricula, for six weeks, followed by loss of power in the right limbs, varying in intensity from time to time; some paralysis of the right side of the face, and protrusion of the tongue to the right. General tuberculosis set in, and death occurred from tubercular meningitis. *Autopsy.* Numerous tubercular granulations (apparently of some standing) were found matted together in the membranes of the brain, chiefly along the margin of the fissure and dipping down into the sulci, and so impinging on the brain-substance; one or two specks of yellow tubercle, however, were found imbedded in the brain-substance, and quite isolated from the membranes. There was a general deposit of recent tubercular granulations in nearly all the organs. CASE VI. Girl, aged 2¼. This case was given for the sake of comparison, although not one of hemiplegia; paralytic symptoms were only noted on the third nerve. The child was first affected with symptoms of atrophy, bronchitis, and diarrhœa, then with discharge of blood and pus from the ear; spots of purpura were next seen, and noma and jaundice appeared before death. Immediately before noma set in (ten days before death), drooping of the left eyelid and dilatation of the left pupil were noted. The pupils became equal, but the droop of the left eyelid, although lessened, persisted till death. *Autopsy.* The left corpus striatum was found much softened; there were tubercular granulations in the lungs; no affection of the petrous bone. Dr. Finlayson remarked on the rarity of true hemiplegia in children, although facial paralysis and common infantile paralysis were, of course, often enough limited to one side. He called attention to a few of the points as worthy of special notice: the choreic symptoms from cerebral tumour; the absence of any loss of consciousness in the case of cerebral softening and capillary hemorrhage; and the protracted course of the case of meningeal tubercle and its giving rise to the unusual symptom of hemiplegia. The softening of the corpus striatum in the last case appeared in the midst of evidences of profound alteration in the nutrition. He regretted that ophthalmoscopic examinations had been neglected.—*Brit. Med. Journ.*, April 30, 1870.

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17. *Rupture of the Heart.*—By Dr. J. DE BARY, of *Frankfurt.* Mrs. J., 72 years old. had been suffering for a year from pain in the region of the liver, of a paroxysmal character, which was judged to be due to the presence of biliary concretions in the gall-bladder; was suddenly attacked on the 28th September,

1869, with a deep-seated pain on the left side, beneath the lower angle of the shoulder blade. The face and extremities of the patient became cold, and her surface covered with cold sweat, and difficult respiration. Dr. de B. saw the patient soon after the attack. He could detect nothing abnormal save an irregularity in the cardiac tones, and a remarkable depression of the pulse at the wrist. On the 29th and 30th of September and 1st of October, each day the attack of pain suddenly recurred, with difficulty of breathing, eructations, and a tendency to vomit. These symptoms varied somewhat on different days, and were mostly of short duration. On the 2d of October the patient felt comparatively well. She complained only of difficulty in swallowing, especially of fluids. The pulse was still somewhat weak. There was no longer any pain. The sounds of the heart were regular. This seemingly improved condition of things continued during the 3d and 4th of October, her swallowing having become improved. On the evening of the 4th the patient, sitting up in bed, in the act of swallowing some water, suddenly fell back dead. In a post-mortem examination the pericardium was found greatly distended, containing about a pint of coagulated blood. Near the centre of the posterior wall of the left ventricle there existed an almost transverse rupture with ragged edges, about a finger's breadth long exteriorly, but somewhat less where it entered the ventricle. Around and about the rupture the muscular walls of the ventricle exhibited complete fatty degeneration. The remaining muscles of the heart were nearly in their normal condition. Within the aorta near its commencement there was a thin layer of atheromatous matter. The valves were altogether normal. In the gall-bladder were two biliary concretions of the size, each, of a walnut, firmly grasped by its greatly hypertrophied walls. At the left edge of the liver were two cysts, each of the size of a nut, and filled with a thin uniform fluid. There is little doubt, the relator remarks, that in the above case the rupture of the heart occurred on the 28th of September, showing, consequently, that the patient survived the accident six days.—*Deutsches Archiv f. Klinische Med.*, February, 1870. D. F. C.

18. *Glycerine-Lymph in Vaccinating.*—Dr. E. Müller, in *V. Horn's Vierteljahrschrift für Gerichtliche Medicin*, 1869, after an historical exposition of variolous inoculation, vaccination, and revaccination, endeavours to point out the cause of the great mortality which still occurs from smallpox, by the large number of the community who are unprotected or only partially protected from the variolous contagion. Hence, on every occurrence of a variolous epidemic, to prevent its spread, all unvaccinated children must be immediately vaccinated, and all older persons revaccinated. The chief difficulty in carrying out with sufficient promptitude these sanitary measures is the scarcity of pure, efficient lymph. According to Dr. M. this scarcity may be in some measure obviated by the dilution of the vaccine lymph with glycerine. He recommends that five portions of lymph be intimately mixed by means of a fine camel's-hair brush with the same quantity of glycerine, that has been reduced by the addition of water to one-half its strength. The lymph thus treated (*glycerine-lymph*) is as effective, Dr. M. assures us, as the lymph ordinarily used, perhaps more so; it has also the advantage of a greater tenacity in its active powers, and hence of being kept for use for a longer period without deterioration, so that on the outbreak of an epidemic of variola a sufficient supply of reliable lymph may be on hand for vaccination and revaccination.—*Centralblatt f. d. Med. Wissensch.*, March 5, 1870. D. F. C.

19. *Effects of the Secretion of Tears on the Circulation of the Brain.*—Mr. Lund read before the Manchester Medical Society, March 2, 1870, a paper on this subject. He related the case of a lady who, about ten years since, after hearing suddenly of the death of a son, was seized with a violent paroxysm of grief, shed tears profusely, suffered for some days from frontal headache, and great cerebral excitement, and then recovered. Lately, this same patient received news, by letter, of the supposed death of another son abroad. The circumstances were peculiar, and, when the letter was read, while all the family around were greatly affected, it was noticed that, contrary to her usual habit when much

moved, she did not shed a tear. In about two hours afterwards, while sitting at dinner, she suddenly exclaimed, "Oh! my son, I shall never see him again!" and immediately she was seized with right hemiplegia. There were no other form of paralysis, and no aphasia. The total loss of power, with partial loss of sensation, in the right arm and leg remained for nearly five days, after which the paralysis gradually ceased, and, at the end of three weeks, all traces of it were lost. During this time, it was declared by her friends that she was never seen to shed tears. The inference drawn from these facts and from other singular cases referred to was that, on both occasions, under the excitement of intense grief, certain parts of the brain, most probably the thalami and striate bodies, which have been called the *emotional ganglia*, were the seat of vascular congestion; that, on the first occasion, this vascularity was in some way relieved by the secretion of tears, but, on the second attack, the secretion of tears not occurring, the congestion of the ganglia persisted for a certain time, and this state and the paralysis were associated together as cause and effect. It was assumed that one use of intense lachrymation, as an emotional secretion, was to relieve the excessive *intracerebral vascular congestion* of certain parts, which, if allowed to go too far or to be too long sustained, would damage the structures and cause suspension of their functions. The whole subject was illustrated in many ways, and the paper, which was very interesting, caused considerable discussion.—*Brit. Med. Journ.*, April 30, 1870.

20. *Some of the Functional Derangements of the Male Genital Organs.*—Mr. W. F. TEEVAN read a paper on this subject before the Harveian Society (March 3, 1870). 1. *Abnormal erections in children* might occur at the earliest age, and were caused by some local irritation, as very acid urine, gravel, calculus, worms, prolapse of rectum, or cutaneous eruptions. Children who were forced to lie much on their backs, as in hip-joint disease, suffered from erections through the pressure of the urine on the most sensitive part of the bladder. A tight foreskin was a fertile cause of evil, and ought to be removed. 2. *Too frequent nocturnal emissions in young men* often caused much alarm; but the mental anxiety, rather than the seminal loss, was the cause of the depression. Drachm doses of the tincture of sesquichloride of iron would entirely check these emissions. 3. *Nocturnal emissions in married men* were of common occurrence, and arose from debility and irritation, the results of marital excesses. Local applications of mild solutions of the nitrate of silver would be necessary to effect a cure. 4. *Seminal discharges during defecation* took place in most men at some period of their lives, or some prostatic fluid only might be pressed out. When, through indigestion, the semen became attenuated, or there was constipation, the powerful contractions of the levator ani would press out some fluid. Laxatives, &c., would cure these cases. 5. *Diurnal emissions* were of serious import, and might be occasioned through the slightest mental or physical excitement. Suppositories of camphor, belladonna, and opium, were of great use, but a solution of the nitrate of silver would have to be applied to the veru montanum. 6. *True lethargy of the sexual organs* was sometimes observed in powerful young men who had led continent lives, and generally manifested itself as loss of sexual desire. Phosphorus, ergot of rye, cantharides, and strychnia, were indicated in these cases.—*Lancet*, April 23, 1870.

21. *Therapeutic Effects of Chloral in Fever.*—Fever having been prevalent in Edinburgh, an ample field was afforded to the Physicians of the Royal Infirmary for investigating the action of chloral in that disease. "From a large series of observations, it has been ascertained that, although the drug has no direct influence in cutting short or in any way affecting the natural course of the disease, it is a valuable means of assisting and promoting recovery, by its action as a palliative to the numerous distressing symptoms which constantly occur. In doses of thirty grains repeated every hour—two or three times if necessary—in most cases a quiet and refreshing sleep is produced, which serves greatly to maintain the strength of the patient, and to enable him the better to withstand the violence of the disorder; and by thus preventing fatigue and

exhaustion, especially in a weak and feeble constitution, it expedites the recovery and the elimination of the virus. It is found that no injurious effects are produced upon either the digestive or the nervous systems; on the contrary, the appetite is sometimes apparently improved, and the excitement and delirium are frequently diminished. It is also observed, when violent head-symptoms exist, that the ordinary dose should be increased to forty or sixty grains, repeated at intervals, if required, before a sedative effect is obtained. Also, although chloral, under some circumstances, lowers the temperature from half a degree to two degrees, it would appear, from a limited series of observations, that in fever it does not do so, and seems to produce little or no effect as determined by the thermometer. Its action upon the pulse, as ascertained by the sphygmograph, is that of diminishing arterial tension, rendering its quality softer and more regular, but not, apparently, having much effect upon its frequency."—*British Medical Journal*, April 30, 1870.

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22. *Therapeutic Effects of Hydrate of Chloral in Cerebral Diseases.*—Dr. T. S. Clousten, Medical Superintendent of the Cumberland and Westmoreland Asylum, thus sums up his experience after having given the hydrate of chloral in forty cases of various forms of *insanity*:—

"1. It has proved a most safe and certain sleep-producer. It seems certain that by it we can compel sleep in any case.

"2. By means of this property, attacks of insanity may probably be warded off in some cases.

"3. Its action in abating and soothing excitement is more uncertain than its sleep-producing power, and lasts a shorter time than that of any signally powerful drug; but it is most valuable in certain cases, especially in some recent and curable ones, where formerly we should have been afraid to give opium. It has no directly curative action, but it evidently could be so employed as to tide over short attacks of insanity, and to prevent certain cases from being sent to lunatic asylums.

"4. Whether it does good or not, it never does harm. In this respect it is the very king of all narcotics.

"5. Its effect on the temperature of the body is variable in different cases, and in the same case at different times; but generally it is to reduce the temperature slightly, taking the average of a number of patients. It differs from opium in this respect, which raises the temperature; but the reduction caused by chloral is not nearly as great in maniacal excitement as that caused by alcohol in large doses.

"6. It should be given to subdue brain excitement in doses beginning at twenty or thirty grains, repeated from three to five hours. To produce sleep in great excitement, from forty to sixty grains are required, the latter dose not failing in one per cent. of the cases."—*Brit. Med. Journal*, May 7, 1870.

Dr. John B. Tuke, Medical Superintendent of the Fife and Kinros District Asylum has employed chloral with good results in acute mania, asthenic insanity, the insomnia of melancholy, and in chronic cases of insanity in which violent outbursts of excitement occurs. "The advantages of chloral," he says "over all other hypnotics with which I am acquainted are—

"1. That it is more uniformly certain in its action.
"2. That it has no depressing influence.
"3. That it does not cause constipation.
"4. That it does not produce nausea.
"5. That its effects are more lasting.

"I believe it to be the most valuable means of procuring sleep which has yet been introduced into the Pharmacopœia of the asylum physician."—*Lancet* March 26, 1870.

Mr. Spencer Wells stated at a meeting of the Obstetrical Society of London, that in a case of furious maniacal excitement seen by him with Dr. Munro, one thirty-grain dose of chloral was followed by almost immediate calm and afterwards sleep.—*Lancet*, April 2, 1870.

Dr. Playfair also reported to the same society a case of threatened puerperal mania where the patient had become maniacal after a previous labour and after the present one exhibited the same symptoms which had preceded the previous attack, viz: restlessness, inability to sleep, etc. Thirty grains of chloral given at bed time produced a long and quiet sleep, and the same dose was repeated every night for a week. Dr. P. has no doubt that this medicine kept off the threatened attack.

A case of puerperal mania was communicated to the Obstetrical Society of Edinburgh by Dr. THOMPSON, who stated that from his observation in that case he looked forward to chloral being of the greatest service in the acute stage of that disease.—*Edin. Med. Journal*, May, 1870.

Mr. R. G. HILL reports (*Med. Times and Gaz.*, April 9, 1870) a case of acute mania in a female, in which the usual remedies were tried without benefit, when chloral was given with the happiest effects.

Much additional testimony has been adduced as to the value of the hydrate of chloral in *delirium tremens.* According to the experience of the physicians of the Royal Infirmary, Edinburgh, chloral seems in this disease "to be almost a curative agent, as in most cases, notwithstanding violent excitement or delirium, it produces a sound sleep, from which the patient frequently awakes sane and rational. In doses of forty or sixty grains, repeated every half hour three or four times, a deep and lengthened sleep generally ensues. Although there are several exceptions, many most interesting and remarkable cases might be cited to prove the general rule."—*Brit. Med. Journal*, April 30, 1870.

Mr. MAUNDER has employed it successfully at the London Hospital, in a case of furious delirium tremens in a woman. A drachm dose was given, and within half an hour she was fast asleep, all maniacal symptoms being abolished for the time. The dose was repeated with the effect of keeping her quiet, and at the date of the report she seemed quite rational.—*Brit. Med. Journal*, April 2, 1870.

Dr. GEORGE W. BALFOUR has been equally successful with chloral at the Royal Infirmary, Edinburgh. He relates six cases of delirium tremens successfully treated, and says that the cases in his wards "vary from the merely excited fidgety condition, known as the horrors, to the most exaggerated mania, often accompanied by repeated epileptiform convulsions. The cases given are amongst the severer ones treated; the milder ones succumbed more readily to the treatment, one dose being usually sufficient: the general result being to keep the wards almost empty, from the rapidity with which the patients are enabled to be discharged."

Dr. C. A. STIVERS reports (*Pacific Med. and Surg. Journal*, May, 1870) two cases of delirium tremens successfully treated with chloral in the San Francisco Hospital.

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23. *Hydrate of Chloral in Phthisis Pulmonalis.*—For producing sleep, for soothing irritation, and for relieving the painful cough in phthisis, the physicians of the Royal Infirmary, Edinburgh, are satisfied, from many observations, that chloral is most valuable. In doses of twenty or thirty grains it induces a healthy, refreshing sleep without any deleterious accompaniments.—*British Medical Journal*, 1870.

Dr. J. HUGHES BENNETT has found that such is the loss of appetite, increased weakness and emaciation which follow the use of opiates and chlorodyne, he says: "I never give them except in the last stages of the disease, and when, all hope of prolonging life having ceased, we choose the least of evils in procuring even unhealthy sleep. But matters are greatly changed when we are able to obtain the natural sleep that chloral produces. By its aid we can lull irritation, and give rest for a time, in many cases, without any injury whatever. I have recently made special observations on this point in nine cases of phthisis now under my care in the clinical wards, and have collected the experience of some of my colleagues."

He gives a table of these twenty-one cases, in which are shown the lesion in each case, the dose of chloral given and its effects, with some other details, and remarks: "I think it will be admitted that no kind of opiate would have produced such uniformly good, and so few bad results in twenty-one cases of phthisis, as is here shown to have been the effects of chloral. In three cases the individuals slept well habitually, and the remedy only intensified sleep without affecting the head, tongue, or appetite. In one case it caused vomiting twice, when taken with cod-liver oil, but when dissociated from it produced no ill effect. In one case, in addition to cough and restlessness at night, there was considerable sweating, which was much alleviated by the chloral. To assure myself of this fact, it was given ten nights running, always producing good effects, and when stopped the sweating again increased. In one case it produced excitement and a state approaching delirium, but the dose was thirty grains. In one case the same dose caused slight headache in the morning. In one case also the tongue was more furred afterwards. In all the other cases the relief to the cough and restlessness at night, with the production of sound sleep, was most marked, while the head, tongue, and appetite were in no way affected."—*Practitioner*, May, 1870.

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24. *A purely Milk Diet in the Treatment of Diabetes Mellitus, Bright's Disease, Disease of the Supra-renal Capsules, Fatty Degeneration, &c.*—Dr. Arthur Scott Donkin, in an interesting communication (*Lancet*, April 23 and 30, 1870), highly extols a skim-milk diet in the above diseases. "The first appreciable action," he says, "of skim-milk taken to the extent of six or seven pints daily, is that of a most energetic diuretic, a profuse flow of urine being rapidly produced. The effect of this, in Bright's disease, is to *flush* the uriniferous tubules, and to dislodge and wash out the concrete casts of diseased epithelial cells by which they are blocked up and distended. This emptying of the tubules relieves their pressure on the surrounding *secondary* capillaries; the blood begins to flow more freely through them: the distension of the *primary* Malpighian capillaries is relieved, less and less albumen escapes through their walls until the renal circulation is gradually restored, when it finally disappears from the urine. While this beneficial change is progressing, healthy epithelium is developed in the tubules, and the urinary excrement is withdrawn from the blood. In short, a healthy nutrition becomes re-established in the kidneys through the agency of milk, which, above all other substances, seems to exercise a controlling influence over this process—so much so that Dr. Karell, in the valuable contribution already referred to, in endeavouring to explain its curative power over many diseased conditions, calls it a 'regulator of nutrition.'

"The administration of milk causes the immediate absorption into the blood of a large quantity of albumen in a condition specially prepared in the laboratory of nature for assimilation and nutrition, as well as every other substance requisite to nourish the body. Consequently, in the disease under consideration, it quickly restores the lost albumen to the blood, and removes its hydræmic condition; the specific gravity of the serum is soon raised to a healthy standard, and the deficient red corpuscles are replaced. Under these circumstances the dropsical effusion is rapidly absorbed. Milk, then, does not merely remove the dropsy by simply withdrawing a large quantity from the kidneys, as is done by ordinary diuretics, but, in addition, it prevents its *return* by restoring the healthy condition of the blood, and this, too, with a rapidity which cannot be effected by any other remedies.

"It would be absurd to contend that cases of chronic parenchymatous nephritis so far advanced that the destruction to the kidneys is irreparable can be cured. Nevertheless two of the cases which I have recorded, as well as several others which have come under my observation, convince me that most cases, in which the second stage is not too far advanced and the disease not complicated with others of a fatal character, can be cured by the treatment I have indicated."

Skim-milk, Dr. D. thinks is more efficacious than the water treatment recommended by Dr. Dickinson, for the reason that water cannot replace the deficient albumen of the blood-serum nor the materials for the development of red corpuscles.

"I have very seldom," says Dr. Donkin, "found the skim-milk disagree with my patients, and never known it produce diarrhœa. On the contrary, it generally induces constipation—a symptom which, though it frequently requires to be remedied by a mild laxative, I now regard as a certain indication that the milk is agreeing with the patient, and producing the beneficial operation for which it has been prescribed.

"The milk may be given warm or cold, according to the inclination of the patient; it must not, however, be boiled, as a temperature of 212°, I feel certain, either seriously impairs or altogether destroys its therapeutic energy, possibly by altering the molecular arrangement of its casein, or by destroying some vital agency with which it is endowed. As to the time of administration, it may be given in four meals daily, with an interval of four hours between each; or it may be taken at shorter intervals and in smaller quantities, but in such a way that six or seven pints are consumed by an adult in the course of twenty-four hours. Should the stomach be delicate, or digestion impaired, or should chronic vomiting exist, the treatment must be begun by giving one or two pints, or even less, in small divided doses during the first day, the quantity being gradually increased from day to day until the requisite amount is reached. In cases of chronic vomiting, bismuth may be prescribed at the same time with advantage, as well as such other remedies as may be indicated by the nature of the case. Should these precautions be taken, no difficulty or inconvenience will be experienced.

"I must further add that the cream must be carefully skimmed from the milk, which, for this purpose, should previously stand twenty-four hours, when the weather will permit. The cream, in consequence of the butter which it contains, most certainly acts injuriously in the chronic affections amenable to this treatment; besides, it has a strong tendency, when taken in large quantities, to disorder the stomach. In diabetes it is most injurious.

"I have had but one opportunity of treating a case of *disease of the supra-renal capsules* with a skim-milk diet, and with a result which I consider well worthy of being recorded. The appellation of 'supra-renal asthenia,' given to this remarkable affection by Jaccoud in his valuable essay on the subject,[1] is certainly appropriate, inasmuch as the characteristic asthenic cachexia invariably attending its progress is, as he justly terms it, 'une asthénie croissant jusqu'à la mort.' The case to which I refer is, I believe, the only one in which a recovery has been effected after the symptoms of the malady were unequivocally developed."

Dr. D. speaks favourably also of the effect of skim-milk in fatty degeneration and obesity. "Skim-milk affords no pabulum for the development or nutrition of fat, existing abnormally in diseased muscular fibre or in adipose tissue in cases of obesity. An exclusively skim-milk diet will there be found, in cases of polysarcia and of diseased tissue often associated with it, to be a much more potent and agreeable remedy than the system termed Bantingism.

25. *Lactic Acid in Croup.*—Dr. WAGNER, in a recent number of the *Jahrbuch für Kinderheilkunde*, states, in disproval of the value of lactic acid in cases of croup as a remedy, for which it has been recommended, that he prescribed it in a case of diphtheritis of the tonsils which had passed into laryngeal croup. The utmost care was taken in conducting the inhalations of lactic acid—commencing with 15½ drops to one ounce of water—but without any beneficial result. As little benefit was obtained in severe cases of laryngeal croup, preceded by pharyngeal diphtheritis, from the use of lime-water, also highly spoken of as a remedy in croup. It is very probable, however, that both these articles will be found more successful in even severe diphtheritic cases, so long as the disease is strictly confined to the throat.—*Centralblatt f. d. Med. Wissensch.*, March 26, 1870. D. F. C.

26. *Belladonna as a Remedy for Constipation.*—Dr. F. B. NUNNELEY has been in the habit of giving to the patients at York Dispensary who suffered from constipation extract of belladonna, as recommended by Trousseau. in doses of gr. $\frac{1}{6}$ to $\frac{2}{3}$ on rising every morning. A grain of the extract with three grains of the extract of gentian were made into six pills, and one to four prescribed for a dose. "Belladonna in the usual dose," he says, "of gr. $\frac{1}{6}$ to gr. $\frac{1}{2}$ produced no dryness of the throat, or dilatation of the pupil, but presented the following advantages over ordinary purgatives: It did not gripe but gave

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[1] Nouveau Dictionnaire de Médecine et de Chirurgie Pratique, tome v. p. 804.

usually a healthy solid stool, increased constipation did not follow its use, and it very often restored the natural action of the bowels, so as to render a recurrence to this or other aperient unnecessary. Another and important advantage is the small bulk in which the remedy can be given.—*Practitioner*," April, 1870.

27. *Itch treated by Balsam of Peru.*—Balsam of Peru is claimed to be an effectual remedy for itch. The treatment is as follows: The patient is stripped and well and carefully rubbed over with Peru balsam from crown to heel, avoiding the production of abrasions. It soaks into the galleries and eggs, and kills everything on the body within an hour. A second rubbing, ten days after, destroys any stray animalculæ or products of eggs that may by chance have been in the clothes at the first rubbing, and thus does away with any need for baking or otherwise disinfecting the clothing.—*Edinb. Med. Journ.*, May, 1870.

28. *Use of Sarsaparilla in Syphilis.*—Dr. T. CLIFFORD ALLBUTT states (*Practitioner*, May, 1870) that the antisyphilitic effects of sarsaparilla depend upon the dose in which it is given, and that given in adequate doses it is one of our best remedies. It has been used in the Leeds Infirmary for at least a quarter of a century, in the form of decoction, and it is made there in large quantities. "Of this decoction, which differs only in unimportant details from the compound decoction of the Pharmacopœia, we administer from four to ten ounces three times a day, or prescribe some such quantity as a pint or a pint and a half to be taken at will during the twenty-four hours. This medication is expensive, no doubt, but that treatment is the cheapest which most quickly cures the patient. The cases in which sarsaparilla is most useful are cases in which the system is thoroughly infected with syphilis, during the tertiary and visceral modes of its appearances.

"In persons who are in a thoroughly cachectic state, who have lost flesh and strength, and who are suffering from sluggish ulcerations and indolent gummata, the sarsaparilla is really of very great value. I believe there is scarcely a practitioner among my readers who will not rejoice to hear of a remedy which will help him to cleanse and to re-establish old syphilitic patients—patients whose constitutions have been undermined by want of nourishment or by excesses, who have gone through many courses of mercury, whose irritable mucous membranes will not bear any more iodide of potassium, and who are so sallow, so worn, so broken down, so eaten up by disease as to seem fit only for the grave. These persons clear up on such quantities of sarsaparilla as I have named, and it is here that the drug fills so important a gap. It need not, and it will not, supersede mercury and iodide of potassium in straightforward cases, but it has its place where these means have failed, or where they are on some grounds to be avoided. How far we are right in claiming this important place for sarsaparilla can only be known after an extended use of the drug according to our method by the profession at large."

29. *Subnitrate of Bismuth in the Diarrhœa of Young Children.*—HELLER, in the *Deutsches Archiv für Klinische Medicin*, vol vi., recommends, in the treatment of the diarrhœa of early life, the subnitrate of bismuth to the extent of from thirty to sixty grains. In the commencement, Dr. H. gives a dose of the remedy every hour until the diarrhœa was arrested, which usually occurred at the end of twenty-four hours. He has never seen any bad result from the use of the remedy. During the continuance of the diarrhœa the patient is to be debarred the use of milk. D. F. C.

30. *Local Paralysis successfully treated by Hypodermic Injection of Strychnia.*—Mr. BARWELL read an account of a case of this before the Clinical Society of London, April 8, 1870. The patient, a tailor, æt. 58, had lost the use of the extensors and supinators of the right forearm fifteen weeks before coming under Mr. Barwell's notice. The condition resembled painters' wrist-drop; but there was no sign of lead-poisoning; the muscles were not appreciably shrivelled, nor did they respond to faradisation. On December 6, 1869, Mr. Barwell injected hypodermically 3½ minims of a solution of strychnia, said

to contain 1 grain in 50 minims—*i. e.*, 0.07 of a grain. On the 13th he injected 5 minims—*i. e.*, 0.1 of a grain. Each injection was followed by marked increase of power. An interval of seven days occurred, and during that time the patient remained in the same state as two days after the second injection. On the 30th, 6 minims—0.12 of a grain—were injected, and three days afterwards the patient had quite recovered. An interesting discussion was maintained regarding the strength of the solution and the asserted unusual magnitude of the dose. Mr. Barwell affirmed that the concentrated state of the solution was the condition which made the dose safe. It was pointed out, however, that the solution was not of the strength stated, as, from its mode of preparation, a proportion of the strychnia would be precipitated. The solution was accordingly referred to a committee consisting of Mr. Barwell, Dr. J. Burdon Sanderson, and Dr. John Harley.

This committee reported on the 22d April that the substance soluble in chloroform amounted in percentage rate to the quantity of strychnia stated to exist in the solution. A further investigation was thought to be required.—*Brit. Med. Journal*, April 30, and *Med. Times & Gaz.*, June 4, 1870.

31. *Phenic Acid in the Treatment of Smallpox.*—M. CHAUFFARD, of Cochin Hospital, has employed phenic or carbolic acid in the treatment of smallpox, and stated at a meeting of the Société Med. des Hôpitaux with excellent results. He administers it internally in the dose of one gramme daily in a draught of from 125 to 150 grammes, and applies lotions of it externally of the strength of 1 in 50 or 100 parts of water. Dr. C. resorts to this treatment on the very first appearance of the eruption, and asserts that the severe fever and attendant effects of suppuration abated and ceased rapidly. It was particularly efficacious also in the secondary fever of severe confluent variola. Drs. Douillard and Martinelli also extol the remedy warmly, and report cases in which it was eminently useful. Other practitioners do not report so favourably of it, but enough evidence has been adduced to claim a further trial for it.

32. *The Use of Hydrate of Chloral as a Remedy in Epilepsy.*—Dr. WEIDENER, of Jena, relates an interesting case of a lad, 19 years old, a gardener by occupation, who, since his sixteenth year, had been the subject of epileptic attacks. The fits, according to the patient's account, occurred at irregular intervals. Occasionally they would recur two days consecutively, in other cases not until after the lapse of several weeks. The countenance of the patient exhibited an expression of terror or affright. There was from time to time a rapid alternation in the temperature of the surface. Each epileptic paroxysm was ushered in by an *aura* of short duration, resembling a rush of cool air along the entire extent of the spine. Shortly after, the patient, with a loud shriek, was seized with epileptiform convulsions, which held him apparently breathless for some five to ten minutes. With almost every paroxysm the tongue was bitten; after the convulsions had subsided, there was observable a number of punctated ecchymoses over the eyebrows. During the intervals there would often be experienced, suddenly, convulsive movements of the muscles of the upper extremities and, also, often of the lower extremities. Physical excitement would often give rise to repeated convulsive distortions of the lips.

The father of the patient, it was ascertained, had suffered from epilepsy up to his twenty-seventh year; a brother, twenty-five years old, had been epileptic since his eighteenth year; and another brother, thirteen years old, since his ninth year.

A careful examination of the patient proved that nothing abnormal was to be detected in either of the organs of the chest, abdomen, or pelvis. The skull was symmetrical in shape, and of a smooth, even surface. Neither cicatrix, tumour, nor other mark of injury could be detected on any part of the body.

The fits, instead of remaining irregular in their occurrence, as at first, became, subsequently, somewhat periodical, recurring, every seventh day, always at the same hour—between three and four o'clock A. M. The patient then awoke with a sense of difficulty of respiration, great anxiety, with confusion of mind; after uttering a loud scream or two, within the course of five or ten minutes, he was seized with a violent paroxysm of epileptic convulsions.

On Friday, November 12th, about one o'clock A. M., some two hours preceding the anticipated paroxysm, a dose (45 grm.) of the hydrate of chloral was taken by the patient. About fifteen minutes after taking it he fell asleep. Between three and four o'clock the respiration of the patient was regular—about fifteen respirations to the minute. He awoke at seven o'clock A. M., without headache, or any other of the ordinary symptoms of the epileptic attack. On each of the two succeeding Fridays (Nov. 19-26), and at the same hour, he took the same quantity of the chloral, and with the same result. No paroxysm had now occurred for a space of three weeks. From the 15th of November the patient had been placed under the use of bromide of potassium in large doses.

Dr. Weidener remarks, January, 1870, that on a close examination of the patient he could discover no remaining symptom of an epileptic character, he, therefore, believes himself justified in presenting the case as a fair example of the beneficial results that may be anticipated from the administration of hydrate of chloral a short time preceding the expected occurrence of the epileptic paroxysm.—*Deutsches Archiv f. Klinische Med.*, Feb. 1870. D. F. C.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

33. *Conditions which favour Secondary Hemorrhages after Surgical Operations.*—M. Verneuil exhibited to the Imperial Society of Surgery (Paris) a specimen derived from a patient who had died from secondary hemorrhage subsequent to ligature of the external carotid artery, which operation had been performed preparatory to excision of the lower jaw for osteosarcoma. At the autopsy all the viscera were found healthy except the liver. This organ had undergone an alteration which, after careful microscopic examination, M. V., with the concurrence of MM. Vulpian, Cornil, and Ranvier, designated as diffuse miliary hepatitis. The patient died from accidental hemorrhage; had he lived longer he would have died of disease of the liver. It may be asked what influence had this hepatic alteration on the production of the secondary hemorrhage. On comparing the result in this case with the results arrived at by Monneret in his researches on the diseases of the liver which show the important part which hepatic disease plays in the production of spontaneous hemorrhages, M. V. does not hesitate to ascribe the occurrence of secondary hemorrhage in his case to the hepatic disorder; and he calls anew the attention of the profession to this point of etiology, still so obscure, of consecutive hemorrhages which follow traumatic lesions or surgical operations.

M. Demarquay stated that he had often observed secondary hemorrhages in persons affected with disease of the liver. He had at this time a patient suffering from phlegmon of the parotid with cirrhosis of the liver, who had frequent attacks of epistaxis.—*L'Union Médicale*, March 24, 1870.

34. *Some Points in the Pathology of Tetanus.*—M. Verneuil, in commenting on a case of tetanus reported to the Surgical Society of Paris, called attention to the following points, which seem worthy of notice:—

1st. That the increase of general temperature in tetanus should not be ascribed to the general muscular spasms which have hitherto been considered as the sole cause of that phenomenon, but that it results solely from the excitation of the spinal cord.

2d. That the grave nature of tetanus depends less upon the number of muscles affected than upon the functional importance of those muscles. If the spasms affect only the laryngeal muscles the case must be considered as very serious; for there is then danger of asphyxia being caused, and therefore the condition of the respiration in tetanus affords to some extent a means of prognosis.—*L'Union Médicale*, May 21, 1870.

35. *Etiology of Erysipelas from Wounds.*—Dr. KOENIG (*Deutches Arch. d. Heilkunde*, 1869) observed that during a slight epidemic of erysipelas which occurred in the Rostock Clinic, only the fresh wounds made in operations were attacked, and of these only such as were performed in the operating theatre. Operations performed upon patients whilst lying on their beds in the wards were not followed by the disease, and persons brought into the clinic in consequence of wounds inflicted outside of the Institution were also exempt. These facts led to the suspicion that the disease was the result of a poisoning of the blood by a virus generated and introduced by the interrupted suture employed for closing wounds. The stitches were immediately removed in all cases in which they had been employed and their use abandoned in all new cases. From that time forward no new case of erysipelas occurred.

Erysipelas Dr. K. holds to be the result of a specific virus for the development of which the dried blood allowed to remain about recent wounds is a favourable nidus. The old observation he considers to have been a true one; namely, that erysipelas often occurs spontaneously in a wound, in consequence of blood being retained between its edges.

The so-called "medical" erysipelas Dr. K. believes to be identical with that from wounds. Of thirty-three cases of what was set down as non-traumatic erysipelas, in nineteen slight wounds were detected as the starting-point of the disease. In other cases similar wounds might, possibly, have existed, but the swelling was too great to admit of a search being made for them. D. F. C.

36. *Reproduction and Reunion of Divided Tendons.*—The following are the conclusions of an elaborate memoir on this subject read before the Imperial Academy of Sciences by M. DEMARQUAY. The results of his investigations show, 1. That tendon is regenerated by proliferation of the elements which are found at the internal surface of the sheath of the divided tendon, its two ends being retracted. 2. That the external portion of the sheath takes no part in the process, except that the vessels which it supports become more voluminous and more numerous. 3. The proliferation which takes place at the inner surface of the sheath does so at the expense of the cellular elements of the latter, which, at the end of eight or ten days, becomes confounded with the cellular elements which spring from the extremity of the divided tendon. 4. The regeneration of the tendon is rapid in proportion to the vascularity of the divided tendon. Thus, while the tendo Achillis is repaired in twenty or twenty-five days, the tendo patellæ requires a longer time. 5. The phenomena which lead to the reproduction of tendons are in every respect similar to those which occur in the reproduction of bone by the periosteum. 6. Histological examinations have confirmed the deductions from physiological experiments. 7. In this memoir further illustrations are derived from facts in pathological anatomy, and the subject of the suture of tendons is clinically and experimentally examined. The general result, derived from observations made on man and animals, is that sutures of divided tendons do not give rise to satisfactory results except when they are executed by means of very fine needles and very thin threads, when union takes place by means of the proliferation of the cellular elements, and when a considerable length of time has elapsed.

37. *Hydatids in Bone.*—At a meeting of the Berlin Medical Society, Dr. KUSTER related, with full details, a case of echinococci in bone. The patient was a labourer of twenty-two, who fractured his humerus, about the middle of the shaft, when twelve years old; good union took place. About ten years afterwards he was knocked down by a bull, and suffered a fracture of the same bone just above the condyles. A plaster-of-Paris apparatus proved of no avail, a second was not more successful, and he was sent to the hospital. The surgeons at first considered that the former bandages had not been sufficiently tight; rubbing of the ends of the fragments was effected, and the arm and shoulder well secured. This first dressing turned out fruitless, as also did two

subsequent ones; and Dr. Wilms, who had charge of the case, resolved to use ivory pegs. The gimlet, with the slightest effort, sank freely into the bone, and *pus* issued from the opening thus made. The idea of inserting pegs was therefore given up, and the arm kept quiet. Feverishness and severe swelling ensued, and Dr. Küster was obliged to make two lateral incisions, which freed some pus and peculiar-looking membranous shreds. These turned out to be portions of hydatid cysts. A drainage tube was then inserted, and on each dressing vesicles of echinococci were discharged, varying in size from a flaxseed to a goose's egg. This escape of hydatids lasted about four weeks, when both echinococci and pus disappeared. The limb was now attacked with erysipelas, at the termination of which the ends of the fragments remained bathed in a sanious fluid. Soon afterwards the elbow-joint inflamed, and unmistakable symptoms of pyæmia set in. Dr. Küster now disarticulated the limb at the shoulder-joint. On an examination of the part, an extensive purulent infiltration of the intermuscular cellular tissue, up to the shoulder, was discovered. A large sac, full of pus, surrounded the ends of the ununited fragments. In this pus, cysts, varying in size from that of a cherry to a nut, floated about. In the surrounding muscles about twenty small cysts were detected, some the size of a pin's head, others as large as peas, and everywhere a communication with the principal purulent sac could be made out. The author states that no case of hydatids in *muscles* have been recorded since Dupuytren observed them in a case of hydatids of the humerus. On making a longitudinal section of the bone, the medullary substance was found to have been destroyed, a complete vacuum being observed in its stead. Such a case shows plainly how we may be far from the mark when we attribute non-union to some defect in the constitution, to malposition, to imperfect treatment, to a piece of membrane or muscle between the fragments, &c. &c. Dr. Küster has taken the trouble to collect the cases of a similar nature scattered in books and periodicals. He finds only 21 or 22, one case being doubtful. Tibia, 5; cranium, 4 (1 doubtful); spinal column, 3; pelvis, 3; humerus, 3; femur, 2; phalanx of finger, 1. In 5 there was fracture; non-union of course ensued, but there had mostly been some swelling of the bone, which broke on the slightest provocation. In most cases there were no symptoms leading to the suspicion of hydatids. The case of Messrs. Dickenson and Crompton is quoted (where is it consigned?) where a girl broke her humerus by a fall on the staircase; non-union was treated by a seton, and the pus contained hydatids. (Could not the latter have been found in the pus independently of the fracture?)—*Lancet*, May 21, from *Med. Centr. Zeitung*, April 22d, 1870.

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38. *Recovery from Pyæmia.*—The fatality of pyæmia is so great that every case of recovery is worth recording. M. Gosselin has observed two, Broca four, Verneuil one; one was communicated to the College of Physicians of Philadelphia by Dr. Hutchinson; two other fellows of the college stated that they had each observed two (see preceding number of this Journal, p. 398 et seq.), and in the number of the *Edinburgh Medical Journal* for January, 1870, Dr. JOSEPH BELL has recorded three cases. In the treatment of his three cases, Dr. Bell states: "I directed my attention not to any hopes of finding antidotes, or chemically acting on the poison. I gave no alternatives, no specifics, no mercury, but simply aimed at, 1st, keeping the primæ viæ in such a state as best might aid assimilation of nourishment; and, 2d, giving the nourishment in such a form as most easily might be taken up.

"Milk, with lime-water, eggs, beef-tea, at short intervals, and in small quantity, were the chief remedies; an occasional purgative enema, or even a purge of castor oil when required, and really very little else. Case I., from his excessive weakness, had for some days ℥viij of port, and ℥iv of brandy; but this was soon diminished. Case II. got quinia, but could not bear it; at least his appetite diminished under its use, and I had to stop it. Case III. had hardly any drug whatever during his whole long illness. I have more than once (in other cases, never in these ones) tried the internal use of the sulphites, as recommended by Dr. Polli, but cannot say that I have ever seen any benefit result.

Indeed, their effect on the patient's appetite was generally so bad, as very speedily to cause them to be given up.

"Hot drinks, not necessarily containing alcoholics, even hot water, or hot milk-and-water, were found very useful in preventing rigors, which a cold drink would inevitably have hastened. I have been led to lay great stress on the importance of delaying the dressing of the patient's wounds, when his skin is moist, or he feels a rigor to be imminent, and selecting such times as he himself will soon learn to recognize as the most suitable, as involving the least risk of chill.

"I must conclude by adding, that no case will ever recover from pyæmia, without the most careful and devoted nursing."

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39. *Chloral in Tetanus.*—M. VERNEUIL lately reported to the Imperial Society of Surgery a severe case of tetanus cured by chloral, and another not less severe was soon after reported to the same society by Messrs. Dubreuil, Lavaux, and Onimus, successfully treated by the same article combined with continuous electric currents, a fourth case, also successful, was communicated by Dr. Dufour, Assistant Physician to the Ophthalmic Hospital of Lausanne.

Two cases of failure have likewise been reported to the same society, one occurring in the practice of M. Guyon and the other in that of M. Le Fort. M. Guyon stated that in the case reported by him chloral afforded relief, though only temporary. Each time it was given it afforded ease to the patient and produced sleep, and he thinks that if chloral be not a specific and heroic remedy for tetanus, it is at least a useful adjuvant used concurrently with other means as sudorifics, electric currents, etc.

In M. Le Fort's case chloral also afforded relief though it failed to effect a cure. M. Verneuil, in commenting upon this case, called attention to the important fact shown by it, which is that chloral has undoubted powers of arresting contractions of the exterior muscles, but unfortunately fails to arrest those of the respiratory ones, which it is most important to restore to their regular functions; and it is to this last circumstance the failure of chloral seems due. It is therefore necessary to join to chloral, the utility of which is incontestable, some other means which shall exert a special influence on the contractions of the respiratory muscles. This means M. Verneuil thinks is the continuous electric current, which possesses the positive power of arresting the spasm of the respiratory muscles, and thus preventing asphyxia, as in the case of MM. Dubreuil, Lavaux, and Onimus.—*L'Union Méd.*, May 21, 1870.

Mr. TAY, Assistant Surgeon to the London Hospital, reports (*Brit. Med. Journal*, April 2, 1870) a case of tetanus, in a woman forty years of age, treated by chloral unsuccessfully, but life seemed to be prolonged by the remedy and it clearly produced certain definite effects. It was given in doses of a drachm by the mouth and two drachms by the rectum, relieving the patient from the agonies of impending suffocation caused by tetanic spasm, and causing calm sleep and muscular relaxation.

Another case is recorded (*Brit. Med. Journal*, April 2, 1870) by Mr. E. R. DENTON, in which recovery took place. The subject of it was a boy, æt. 18, the disease resulting from an injury. Mr. D. says, "The severity of the symptoms during the first week led me to form a very unfavourable prognosis, but the steady improvement after the administration of the hydrate of chloral, assisted by the bromide of potassium and that of belladonna, leads me to hope that in them we have agents which, in some instances at least, may be found efficacious in combating so frightful a disease."

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40. *Use of Hydrate of Chloral for the Relief of Pain in Cancer.*—Mr. F. E. CLARKE extols (*Lancet*, April 16, 1870) chloral as a palliative in malignant disease. He regards it as the best palliative in cancer for alleviating pain, and by its beneficial effects it enables the constitution to hold out longer against the ravages of the diseases, and "thereby afford a much greater chance of spontaneous cure, rare instances of which occur by the sloughing of the entire mass."

Mr. WEEDEN COOKE, Surgeon to the Cancer Hospital also bears strong testimony (*Lancet*, April 30, 1870) to the value of chloral for the relief of pain in cancer and its superiority over other means hitherto employed for that purpose. As a night draught he has found twenty grains quite sufficient, but when the pain is persistent, ten-grain doses three times a day give the greatest satisfaction. There is no headache, no sickness, no loss of appetite, nothing to hinder the patient taking exercise, and, so far as the disease will permit, pursuing his usual avocations.

Dr. C. C. Cooke states (*Lancet*, March 19, 1870) that a patient of his suffering from cancer of the uterus has found more relief from pain and obtained more sleep since taking chloral than she had done from any other remedy.

41. *Chloral for the Relief of the severe Pain of Burns.*—M. Marjolin stated to the Imperial Society of Surgery that he had administered the hydrate of chloral internally to relieve the severe pain from burns, and with complete relief to the patient. When the chloral is vomited he gives it by injection per rectum in the dose, of 0.50 centigrammes.—*L'Union Médicale*, May 19, 1870.

42. *Hydrate of Chloral for the Relief of the Pain from Surgical Injuries.*—According to the experience of the surgeons of the Royal Infirmary, Edinburgh: "In many surgical injuries, when great pain is experienced, it is generally the means, in doses of thirty or forty grains, of diminishing the suffering without of necessity causing hypnotism; but if the dose is increased, sleep is produced. After severe accidents or capital operations, similar beneficial results, in most instances, follow its administration."—*Brit. Med. Journal*, April 30, 1870.

43. *Indications for, and Results of, Trephining.*—Baron Larrey, from an analysis of one hundred and sixty cranial lesions, draws the conclusions that trephining should be reserved for certain well-defined cases where the indications are perfectly clear, whilst they should not be undertaken precipitately or under doubtful circumstances, lest the already present conditions be aggravated and the fatal termination hastened; and this is the more strenuously urged, because he thinks the prompt and rational application of other remedial means can in many instances materially aid the resources of nature, even in injuries of the gravest character.

The indications for trephining Baron Larrey shortly tabulates as follows: 1. Trephining should be performed in fractures of the vault of the cranium produced either by simple penetration to a greater or less depth, or complicated by the driving in of fragments, when the laceration of the dura mater or the lesion of the brain sets up grave and persistent symptoms, and when efforts at replacement of the fragments by other means than trephining are found to be impracticable. 2. In fractures complicated with the impaction of foreign bodies or projections in the substance of the cranial bones or in the superficial layers of the brain, with persistent symptoms, and impossibility of removal of the foreign bodies by other means. 3. In various mechanical lesions of the head, complicated with serious cerebral mischief, and of a persistent nature, such as contusion and compression of the brain, or even prolonged hemiplegia, with effusion of blood or pus, where this is supposed to be of a circumscribed nature; provided, however, that the local lesion is well defined, and, above all, that active therapeutic means produce no effect; this last being an extremely important reservation.

The contraindications to trephining, on the other hand, are as follows: 1. It should not be performed when the foreign body, having penetrated the skull, is lost in the deep parts of the brain, or becomes inaccessible to instruments. 2. If the blood or pus effused within the cranium does not appear to form a focus in communication with the opening in the bone. 3. In every fracture, whatever may be its extent, which is not complicated by the impaction of fragments, nor by persistent symptoms of compression or paralysis. 4. In the state of cerebral disturbance, or of more or less profound coma, either with or without localized lesion. 5. When convulsions of an indeterminate, or epileptiform, character are present, since these are probably susceptible of cure. 6. In diffuse inflammation of the brain. or of its meninges, rendering itself more or less evident by corresponding symptoms.—*Lancet*, March 26, from *Mémoires de la Chirurgie de Paris.*

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44. *Elephantiasis of Scrotum and Leg, treated by Removal of the Tumour and Ligature of the Femoral Artery.*—Dr. J. FAYRER, of Calcutta, relates (*Med. Times and Gaz.*, May 28, 1870) a case of elephantiasis of the scrotum and left leg, in which he removed the former, and about three months afterwards tied the femoral artery in the left leg. Dr. F. had previously described (*Clinical Surgery in India*, p. 688) two cases of elephantiasis of the leg treated by ligature of the femoral artery. "The result in these cases was not encouraging. The first died of pyæmia on the nineteenth day. The limb had diminished considerably, and so far it promised to do well; his death prevented any opinion being arrived at as to the probability of permanent decrease in the hypertrophy, so that, beyond the fact of an immediate diminution in the swelling, as a result of the operation and the consequent bandaging, nothing definite could be arrived at from this case. My own impression is, that the reduction of the swelling is due more to the bandaging and rest in the recumbent posture than to the ligature of the artery, and I have good reason for believing so, as I have frequently observed in the elephantoid legs of those who have been operated on for scrotal elephantiasis that, with the necessary rest in bed after the operation, the leg diminished considerably, but that it increased again when the recumbent posture was no longer continued. Elephantiasis of the leg, like elephantiasis of the scrotum, is the local expression of a constitutional disorder, and I do not see why temporary deprivation of the blood-supply to the limb should have any permanently curative effect on the local disease. The anastomotic circulation provides for the nutrition of the limb, and, indeed, so far it is probable that the part especially diseased, the cutis, is even more vigorously supplied than under ordinary circumstances, for the result of the cutaneous hypertrophy must certainly be an enlargement of the cutaneous bloodvessels, and as these are concerned in carrying on the anastomotic circulation when the main trunk is obstructed, it appears hardly probable that this condition can be conducive to a curative action in the affected part, nor is it at all probable, I think, that a mere change in the mechanical arrangements for the distribution of blood to the limb can have any effect in removing what is only a local symptom of a constitutional disease.

"The result of the second case tends, I think, to show that this view is correct, for whilst there was a marked diminution at first, after the artery was tied the swelling gradually returned as the man recovered from the operation, and when I saw him some time afterwards he was just as bad as when I tied the artery.

"The third case (that I now record) is not more satisfactory. There was the same temporary diminution of size during the rest and confinement to bed after the operation; but when he recovered the swelling slowly returned, and he is now, six months after the operation, just as bad in respect of elephantiasis of the leg, as he was when the femoral artery was tied.

"I have before referred to the improvement that takes place in the constitutional health after the removal of a scrotal humour—the absence of the periodically recurring paroxysms of elephantoid fever and the consequent cachectic condition it induces. The removal of an ever present source of blood dyscrasia is attended with the best results, and patients have frequently told me that the great relief they had obtained was not so much due to the removal of the abnormal growth, as of the periodic fever which caused them such great distress.

"In this case the same improvement took place, and the elephantoid fever was removed with the tumour, but notwithstanding the amendment in the general health, the leg returned to its original size, and thus proved that, in this case, as in others, the ligature of the artery had not been followed by any permanent benefit to the limb."

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45. *Supracondyloid Amputation of the Femur.*—At a recent meeting of the Royal Medical and Chirurgical Society, May 24, Mr. WM. STOKES, of Dublin, contributed an interesting paper on this subject. He referred to the fact that,

while amputation at the knee-joint had become a more generally approved operation than it once was, orthopædic mechanists—notably Mr. Heather Bigg—had pointed out difficulties in fitting an artificial limb to the stump. With the view of removing the difficulty, he had adopted the plan of removing the condyles of the femur as high as half or three-quarters of an inch above the edge of the cartilage; he also removed the cartilaginous surface of the patella, leaving the bone itself to form part of the covering of the stump. The advantages stated to be possessed by this mode of operating were, that the patella formed part of the face of the stump, covering in the divided surface of the femur; and that an artificial limb can be conveniently applied. Mr. Stokes also contrasted his operation with amputation through the knee-joint, or where the medullary canal is opened, and also with the operations of Gritti and Carden; over each of which he believed it to possess certain advantages.—*Brit. Med. Journ.*, May 28, 1870.

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46. *Excision of the Joints for Disease.*—Mr. F. J. Gant read before the Royal Medical and Chirurgical Society (April 12, 1870) a paper, the primary object of which was to describe the *conditions of disease* which, in the author's experience, seemed to be appropriate for excision of the joints in general; and those conditions also which specially pertained to the knee, hip, and elbow, severally, with relation to this operation, as illustrated by the accompanying cases. So far as the appropriate nature of these conditions of disease might be established by the typical character of the cases adduced, and confirmed by an increased number, they would represent principles whereby to determine the propriety of performing the operation of excision in diseases of the joints. With this view the author appended a careful analysis of each series of cases in regard to their pathology and the operation itself, and its results; and also of the general results of excision in the cases taken collectively, and the relation of these results to the pathology of the joints subjected to operation.

The necessity either for excision or for amputation in joint-disease implied incurability by non-operative treatment. As regarded excision, incurability was defined to signify that condition of the local disease wherein the joint had become *functionally useless* by destruction of the articular cartilages, without the supervention of anchylosis, but while the *constitution* still retained the reserve power requisite for the long process of reparative union—averaging three months after removal of the diseased bone. Any other cases—namely, of advanced local disease—if not falling within the provision of the latter clause of the definition as to the requisite constitutional reserve power, but accompanied with prolonged hectic and exhaustion, would be proportionately unfavourable or unfitted for excision, and must be submitted to amputation.

As compared with the *natural cure* by anchylosis, as a possible result in joint-disease, excision would seem to be preferable in proportion to the more prolonged period of recovery, when unaided by surgical removal of the diseased bone, a probation which entailed long-continued suffering, and left the constitutional vigour reduced and inadequated to sustain the contingencies of disease in after life.

Failures of the natural cure were then considered with regard to excision. This comprised two results: defective kind of anchylosis for the functional use of the limb, as fibrous anchylosis in knee-joint disease, and osseous anchylosis in elbow-joint disease; or malposition of the limb; accompanied, perhaps, with defective anchylosis.

The author then proceeded to state *in extenso* the pathological conditions, or those of disease, and their results from failures of reparation, which severally justified the operation of joint excision, and those also which especially pertained to the knee, hip, and elbow. The histories of the illustrative cases were narrated, and their analyses appended.

The following *general* results were enumerated:—

1. *Excision* proved successful, by one operation, in 16 out of 20 cases of the joints referred to.

2. Of the 4 unsuccessful cases, by one operation, 3 were cases of *scrofulous*

disease, and of the knee-joint, out of a total of 9 cases; the remaining one being *chronic synovitis*. and of the elbow-joint, out of 5 cases.

3. *Re-excision* was resorted to in 2 of the 4 cases; 1 knee-joint, and 1 elbow-joint; the latter with a successful result.

4. *Secondary amputation* was performed in 3 of the 4 cases. All 3 were knee-joint cases, and of scrofulous disease; 1 of which had been subjected to re-excision. The 3 amputations made rapid recoveries. These results tended to show that, if the attempt to preserve a limb by excision, and even by re-excision, of a large joint, as the knee, should fail, the operation was not unfavourable to secondary amputation for the preservation of life.

5. *No death* ensued in any of the 20 cases of the knee, hip, or elbow-joints, whatever had been the condition of disease, or the operation—excision, re-excision, or secondary amputation.

The paper was accompanied by drawings and specimens of bone.—*British Med. Journal*, May 14, 1870.

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47. *Analysis of* 184 *Cases of Stone in the Bladder of the Adult treated by Lithotrity.*—Sir HENRY THOMPSON communicated to the Royal Medical and Chirurgical Society (May 10, 1870) a series of 184 consecutive cases of lithotrity in the adult, operated upon within a recent period; all treated by the same method and with the same instruments. He furnished all the most important details relating to each case, and presented the stone itself in almost every instance, preserved for inspection. His object was to make an impartial estimate of the crushing operation, to ascertain its real value, and its place amongst surgical operations. Although this had never yet been fully done, he regarded Sir B. Brodie's last communication to the Medical and Chirurgical Society as perhaps the most trustworthy and valuable record, so far as it goes, which exists on the subject. In order to accomplish this object, he had made carefully written records of every case; and he cited the following circumstances as necessary to be taken into consideration: that the 184 cases had been treated by a uniform method, within a comparatively brief period of time; that all were adults, and embraced much variety of constitution; that all the important facts relative to each were noted in a history of each one, which was attached to the paper as an appendix; and that a large proportion of the calculi were of considerable size. And the author believed he was correct in saying that so complete an opportunity for studying the results of lithotrity had not been offered hitherto, since, as far as he was aware, the data necessary for the formation of a judgment had not been presented to the profession, either in this country or elsewhere.

The results of the operation were discussed under the following heads: 1. The rate per cent. of recovery after the operation, and the causes of death when it occurred. 2. The general condition of the patient after the operation. 3. The frequency of recurrence of stone after lithotrity.

The chief facts relative to the 184 cases were as fellows. They were consecutive in point of time, no case being omitted; that all were adults, and mostly of advanced age; that they included many individuals of feeble health and constitution; that they were chiefly British, although several were from other nations. The mean age of the 184 cases was no less than sixty-one years. The youngest was twenty-two years old. Only three were below thirty years. The oldest was eighty-four years. There were forty-six cases of seventy years and upward. With very few exceptions, all stones of an ounce and upward were reserved for lithotomy. All obviously below that were crushed. Not one case was refused operation, not one was left unfinished, and in no instance was an operation of lithotrity completed by lithotomy. The recoveries, reckoning every kind of casualty following the operation, were 93 per cent.; but omitting five cases of death, not by any means due to it, the mortality amounted to only 4 per cent. A second operation for recurrence of the stone was performed for thirteen of the 184 cases; 122 were uric acid and the urates; 16 were mixed; 40 were phosphatic; 4 oxalate of lime; 1 cystic oxide; and one pure phosphate of lime.

The important logical conclusion to be derived from the mass of facts considered was, that lithotrity is an eminently successful operation. For a certain number of cases, its success may be regarded as a certainty—absolutely without fear of any contingency, except such as attends the minor operations of surgery; for example, the opening of a small abscess, or the passing of a catheter. For the author stated that he had never lost a patient in the whole course of his experience after crushing a stone which was no larger than a small nut; and this he considered was a size at which, with few exceptions, every stone ought to be discovered. But this very fact led the author to remark that the success of lithotrity cannot therefore be considered apart from a knowledge of the extent, in regard to the magnitude of the stone and the constitution of the patient, to which the capabilities of the operation have been pushed. When it is employed for stones as large as a date, or a small chestnut—and it is impossible to deny the excellent chance of success which this method offers to the subjects of such stones—a certain, but still only small, proportion of deaths must be expected. And the rate of mortality will correspond with augmentation in the size of the stone, and with the amount of existing disease and age on the part of the patient. Given a small stone in a fairly healthy person, and success is certain; the possibility of contingency in such a case depending only on the presence of those remote and excessively rare conditions which will make for an individual here and there the mere passing of a catheter a cause of death. The rule observed had been, for the most part, to apply lithotrity to all calculi obviously less than an ounce in weight, easily discovered by sounding, and to operate on all larger ones by lithotomy.—*British Med. Journ.*, June 4, 1870.

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48. *Lithotomy.*—Mr. Holmes Coote says (*Lancet*, May 21, 1870) that "lithotomy, properly performed, is not in itself so serious an operation as some authors have made it. The last 22 cases performed at St. Bartholomew's Hospital have been without exception successful. In unfortunately fatal cases the cause of death is not hemorrhage, or very rarely so. I cannot recall a case of death from hemorrhage at St. Bartholomew's Hospital during the whole period that I have been attached to that institution. Neither is extravasation of urine a common cause of death with good operators. But when the kidneys have become diseased, the patient's power of recovery seems wonderfully diminished; and inflammation of the peritoneum is an event which the surgeon justly holds in dread."

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49. *Necrosis of the Humerus; Resection; Recovery.*—Dr. Demarquay relates (*Wien. Med. Zeit.*, 1869) the case of a huntsman who, six years previously, had received a gunshot wound in his arm. From the wound, which healed readily, no immediate bad effects were experienced. After the lapse of four years the patient first began to experience severe pains at the seat of the wound; an abscess soon formed there, which, on breaking, gave origin to a fistula, from which were discharged pus and fragments of bone. A probe passed into the fistula came in contact with necrosed bone. A resection of the diseased portion of the bone was performed, and the patient recovered without the occurrence of any unpleasant symptoms. Upon an examination of the excised portion of bone, no sequestrum was found, but in the course of the enlarged medullary cavity of the bone, which was lined with a grayish, lardaceous pus-like matter, in which the microscope detected light granules of fatty matter, there were found masses of a hydatidiform appearance. D. F. C.

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50. *Preventive Treatment of Syphilis.*—At a clinical lecture delivered by Prof. Thiry, of Brussels, he warned his pupils against resorting to precipitate treatment of venereal sores under the idea of preventing syphilis. Until the chancre becomes indurated it is not, in fact, syphilitic at all, and, so far from being benefited by mercury, it not infrequently becomes phagedænic. The mercury is not indicated until induration appears. Then it acts as a curative, not a preventive, agent. The treatment of the chancre itself prior to this, whatever its form, extent, seat, or duration, should be local, yet energetic;

and the bringing this chancre into a state of simple ulcer is the best guarantee we can offer against constitutional syphilis. When, however, in spite of such local treatment, specific induration does appear, syphilis is unmistakably present, and we must interfere for the prevention of further contamination of the system. Now mercury must be at once and vigorously employed, and we are then often able to cut short the disease at its very commencement; and the mercury promptly used has to be continued for a much less time than when delayed. The disappearance of the specific induration is also at this early period the criterion of the efficacy of the cure.—*Med. Times and Gaz.*, May 21, 1870, from *Presse Belge*, April 24.

OPHTHALMOLOGY.

51. *Changes in Astigmatism under the influence of Accommodation.*—Dr. DOBROWSKY shows (*Archiv f. Ophth.* xiv. 3), partly by fully detailed cases of astigmatism, and partly by experiments on eyes rendered artificially astigmatic by cylindrical glasses, the influence of the ciliary muscle upon the defect. He arrives at the following results:—

1. Astigmatism may be completely corrected by unequal spasmodic contraction of the muscle of accommodation. Hence, it happens that astigmatics do not so much complain of seeing badly, as that they can see clearly for only a short time. They do not see the object in dispersion circles, as would be the case according to the theory of astigmatism, but tire easily, exactly like hypermetropics, who also can for a time overcome their optical defect in near vision by an effort of accommodation. In such persons the astigmatism cannot be detected prior to the instillation of atropia, and the regular myopic astigmatism is, for near vision, a less favourable anomaly than simple shortsightedness, but is, on the contrary, less injurious to distant vision, being capable of correction by accommodation. Inversely, in hypermetropic astigmatism near vision is better, and distant vision worse, than in a simple hypermetropic eye.

2. In consequence of unequal contraction of the ciliary muscle, and irregular curvature of the lens, the astigmatism may be partially but not entirely corrected. This happens chiefly in persons enfeebled by long illness, or tired by prolonged exertion of the eyes.

3. By effort and spasm of accommodation it is possible that astigmatism may be increased. Here, also, it is evident that the actual grade cannot be correctly estimated until the ciliary muscle has been paralyzed by atropia. Such patients, when the spasm is relieved, require to change their glasses.

4. By contraction of the ciliary muscle the hypermetropic eye may be so modified as to become apparently shortsighted in one or both meridians. By depletion and the continued use of atropia the spasm may be relieved, and the improper employment of concave glasses may be dispensed with.

5. By irregular spasm of the accommodation eyes that are symmetrical, and either emmetropic, hypermetropic, or myopic, may be made to appear astigmatic.

6. In all cases of astigmatism it is necessary to paralyze the accommodation before deciding whether the defect, or its degree and kind, depend upon the formation of the eyeball, or, partly or wholly, upon some abnormal state of accommodation. It is also possible that other anomalies of refraction may be only apparent, and may be shown by atropia to be astigmatism.—*Royal London Ophthalmic Hosp. Rep.*, November, 1869.

52. *Histology of Trachoma.*—Dr. WOLFRING, of Warsaw, gives (*Archiv f. Ophth.* xiv. 3) an account of the structure of the normal conjunctiva, on which his views differ in many points from those of other authors.

The so-called papillæ are not formations analogous to the actual papillæ, such as are seen in the mucous membrane of the mouth, but are produced by the tarsal conjunctiva, being marked in all directions by grooved channels, or being irregularly folded. In the furrows thus formed there are numerous depressions, which may be regarded as tubular prolongations of the mucous membrane. At the margins of the lids, where the thin conjunctiva is very closely adherent to the tarsus, these furrows are very numerous and very shallow; upon the tarsus they are less numerous, but deeper; and at the point of reflection they pass gradually into those deeper furrows which are characteristic of the appearance of the conjunctiva of the sac. The elevations inclosed between the furrows form, therefore, the papillæ; and these, which are scarcely perceptible at the free margins of the lids, are more evident towards the angles of the eyes and towards the reflection of the conjunctiva. In new-born infants and children the grooves and elevations are very little developed, and their common presence in adults is probably due to the circumstance that the conjunctiva, where it possesses a looser tissue, and is less firmly united with the tarsus, is more at liberty to swell. From the texture of the tarsal cartilages brush-like prolongations of tissue pass into the above described elevations. The vascular capillary network, as well at the bottoms of the furrows as at the tops of the elevations, is "apparently" equally distributed and arranged; yet the author only half concedes the appellation "papillæ" when he declares that every elevation must have its proper arterial branch, but in such a way that its capillary net communicates uninterruptedly with that of the furrows.

The epithelium of the conjunctiva is described by the author as cylindrical epithelium, which, in its most superficial layers, has received a flattened form from pressure. The deep layers possess none but round cells. The cylinder form is least recognizable in the furrows and in the folds of reflection. The cylindrical cells are so quickly shed that they can only be studied in perfectly fresh preparations; and hence this layer has been overlooked by many observers.

The bloodvessels proceed from the external and internal palpebral arteries, which, increased by branches from the temporal and zygomatic regions and the cheeks, form the superior and inferior palpebral arches. The arch of the lower lid courses near its lower margin, that of the upper lid one or two millimetres from its free margin. The latter, however, gives off a branch at each angle of the lid, which meet to form another arch immediately along the convex margin of the tarsus. These vascular arches, and their principal branches, lie near the cutaneous surface of the lids; and from the principal branches proceed, besides those to the skin and the muscles, twigs to the glands of the tarsus, and others that perforate the cartilage to reach the conjunctiva, and particularly its papillary elevations. The twigs are thicker the nearer they are to the convex margin of the tarsus. The capillaries of the conjunctiva, together with those of the posterior surfaces of the tarsal glands, unite to form a close network of fine veins, which lies between the cartilage and the conjunctiva. This network discharges its blood into branches lying parallel with the Meibomian glands, and proceeding to the convex margin of the cartilage, where they unite to form two arches, which correspond to the second arterial arch of the upper lid, and to the single arterial arch of the lower lid.

The pathological changes of the conjunctiva are not specifically different forms of disease, but depend upon essentially similar processes, that proceed step by step from overfilling of the vessels to œdematous swelling, to infiltration of the tissues with elements of lymph, to increased secretion from the mucous surface and its glands. The author uses here almost the same words as Stellwag, without, however, quoting him; and employs also his names for the different forms of trachoma. He has proved experimentally upon animals that in simple catarrhal inflammation the white corpuscles of the blood escape into the conjunctival tissue, and are ultimately discharged with the swollen epithelium in the form of pus cells. If the inflammation be more severe, and of longer continuance, the vessels become hypertrophied, and the conjunctival tissue is converted into an adenoid structure by deposit of lymphatic bodies. In papillary trachoma the papillæ become actual swellings, the lymphoid cells in which make them appear like the solitary follicles of the intestinal canal. In mixed trachoma these roundish collections of lymphoid bodies are still more increased, and inclosed between the coalesced papillæ. The largest trachomatous granules are found near the deeper margins of the cartilages, but they are in no way distinguishable, except by the accumulation of their elements and their greater elevation, from those that are scarcely visible to the naked eye. Generally the granules appear first to come into existence when the most acute stage of inflammatory hyperæmia has passed away. It is well known, also, that when the swelling and redness have entirely disappeared, the infiltrated spots become visible as yellowish granules, which may continue unchanged for years, even when the rest of the conjunctiva has become completely normal.

Different from this is the bladder-like trachoma granules, which, when punctured, give exit to a little fluid containing lymph corpuscles, and collapse. These become developed as it appears, primarily, or as a consequence of hyperæmia of a single vascular twig, which may very well pass unobserved by the patient. In these cases there is probably some especial predisposition. Such granulations may either quickly disappear, or they may themselves become sources of irritation, or they may give rise to swelling of the papillæ, and to the other forms of trachoma. They are distinguished from the harder forms of trachoma granules not only by their position immediately beneath the epithelium, but by containing serous or gelatinous fluid, in which lymphoid elements are mingled only in small proportion.

The fully formed trachoma granules or follicles are usually, but not always, separated from the surrounding textures by some concentric layers of connective tissue. They are surrounded by larger vessels, especially on their tarsal aspect, but their interior is only sparsely penetrated by capillaries.

Whether these granules, when fully formed, become connected with the lymphatic vessels, the author has not been able to determine, since he has not succeeded in injecting the lymphatic vessels of the human eye. In dogs, however, in which trachoma is regularly present on the inner surface of the nictitating membrane, each granule is clearly surrounded by lymphatic vessels, and since the similar formations in the intestinal canal are certainly in relation with the lymphatic system, it may reasonably be believed that in trachoma of the human eye, a similar communication must exist.—*Royal London Hospital Reports*, November, 1869.

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53. *Rupture of Eyeball, with loss of Lens and Iris; good Sight remaining.* Mr. JOHN A. NUNNELEY, Ophthalmic Surgeon to the Leeds General Infirmary, records (*British Medical Journal*, April 23, 1870) the following case, which is very remarkable from the sight being preserved after so severe an injury:—

M. G., aged 54, a robust, healthy woman, came before me in August, 1869, having received an injury to her left eye. She stated that a fortnight previously she had been knocked down in the street by a blow on the eye from the fist of a drunken man. The parts about the orbit were severely bruised; the swelling which came on soon after the injury kept the lids closed for a few days, a little blood discharge escaping from between them, but nothing else that she was aware of; and having little pain or discomfort, she had not thought it necessary to apply sooner for advice, although the sight of the eye had been gone from the time of the injury. The eye was perfectly natural and the sight good before the accident.

When I saw her, the swelling and ecchymosis of the soft parts had disappeared, the cornea was bright and clear, and the anterior chamber was filled with blood, so that the state of the parts behind could not be seen. Parallel with the upper margin of the cornea, and about midway between it and the insertion of the superior rectus tendon, was a somewhat irregular wound in the sclerotic and conjunctiva, about three lines in length, and nearly healed; the eyeball was rather softer than natural; tension = — T 1. She could follow a candle, and tell the position of the window in the room. As the blood in the anterior chamber became absorbed, it was found that the iris was gone; it had been torn from its ciliary attachment and lost. The absence of the lens, which must have been driven out of the eye in its capsule, was proved by the catoptric test. The vitreous humour was at first hazy, obscuring the details of the retina; but there had been no effusion of blood into the vitreous chamber, nor any apparent injury whatever to the retina and deeper parts of the eye. The cloudiness of the vitreous body has now quite cleared up, the retina is healthy, the ocular tension is natural, and the field of vision good; the patient is able to count fingers and distinguish the outline of large objects; and with a two-inch convex lens and a stenopæic apparatus, she can read No. 4 (Jäger), and thinks that the eye is almost as useful as ever.

MIDWIFERY AND DISEASES OF WOMEN AND NEW-BORN CHILDREN.

54. *Mechanism of Production of Face Presentation.*—Dr. J. Matthews Duncan states (*Edin. Med. Journal*, May, 1870), that "it has always appeared to him beyond a reasonable doubt, that the immense majority of face cases are the result of derangement of the usual mechanism of the first part of the progress of the fœtal head through the pelvis; or, that presentation of the face is the result of a displacement of the vertex backwards as regards the child, the extension of the head being produced at or near the brim of the pelvis by the propelling powers of labour."

Dr. D., considers it highly probable that the chief cause of face cases is obliquity of the uterus in any direction, insuring a curvature of the genital canal at the brim of the pelvis; that this cause operates when the forehead of the child is placed near the concavity of the curved canal, or nearest the line of the propelling force; and that the dolichocephalous form will greatly favour the transformation under these circumstances of a vertex into a face case.

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55. *Remarkable Case of Complex Labour.*—Thomas Moore Madden, Assistant Physician to the Dublin Lying-in Hospital, communicated the following he considers unparalleled case to the Dublin Obstetrical Society:—

"February 9th, 1870. I was sent for, at 7.30 P.M., to visit J. S., of 7, Moore-street, a patient attended by the pupils from the extern maternity of this hospital. She had been in labour, and the liquor amnii had been evacuated for twenty-four hours. The pupil in charge of the case (Mr. E. B. Roche), to whose notes I am largely indebted, was not sent for till an hour previously, *i.e.*, 6.30 P.M., when on examining her he found about three inches of the cord prolapsed, and two feet, with a rounded tumour behind, then presenting. He, not unnaturally, concluded this was a breech; and as the cord was pulsating strongly endeavoured to return the prolapsed funis. In doing this he discovered, to his great surprise, that the rounded tumour he felt was not the breech but the head tightly jammed down through the brim by the closely contracted uterus. He then made a decided attempt to push the feet and cord above the head, but so tightly were they caught between the head and the pelvis that he could make no impression on them. He now sent for assistance; and endeavoured in the mean time to keep the pressure off the funis. On my arrival I found Mr. Roche's account of the presentation perfectly accurate. 'The feet were presenting at the posterior part of the vagina, the heels to the sacrum, the toes pointing directly forwards. The feet could be circumscribed and followed up to the lower part of the legs, where they were tightly caught between the head and the promontory of the sacrum. There was a loop of the funis, about three inches, prolapsed between the legs, and pulsating strongly in the intervals of the pains. The head lay in the second position, or rather more transverse, and was jammed down upon the feet and cord'; the pulsations in the latter now ceasing during each pain. The uterus being very tightly contracted on the fœtus, and the liquor amnii having been evacuated for 24 hours, and knowing from experience on other occasions the great difficulty of performing version under these circumstances, I proceeded to apply the long forceps in the hope of bringing down the head past the feet; they however failed to make any impression, although I tried them in the occipito-frontal as well as in the transverse diameters, and as they slipped in both, after several attempts, I abandoned them.

"The funis was still pulsating, but less strongly than when I first arrived. She was now put under the influence of chloroform, by Mr. A. C. Roberts, and this had the effect of so far relaxing the parts that I was enabled, though with considerable difficulty, to draw down one foot; this I could not do before the chloroform was given. The foot was then secured by the attending pupil whilst I reintroduced my hand, and, using some force, succeeded in pushing back the head through the brim of the pelvis and into the uterus, at the same time making forcible traction on the foot. After these efforts had been continued for some time without apparent effect, the fœtus suddenly rotated, the foot came down, the head receded, and the delivery was now easily accomplished. The child was born alive, though apparently still-born, and was resuscitated by the diligent application of the ordinary measures. There was a deep indentation on the right parietal bone where the head had been compressed between the feet and the pelvis. She made a good recovery, and some days after I learned that the mother and child were doing well.

"There appear to me to be two points of interest in the foregoing case; the first is the extreme rarity of a compound presentation such as this; the second is the length of time which had elapsed between the rupture of the membranes and the birth of a living child in this case of prolapsed funis.

"The extreme rarity of a case such as that just described may be inferred from the fact that in none of the statistical reports of the Rotunda Dublin Lying-in Hospital, which, conjointly, afford the largest, and perhaps the most accurate, mass of obstetric statistics in existence, is there any mention of a similar case of complex labour.

"Mauriceau," says Dr. M., "is the only writer he knows of who records a case nearly analogous."—*Dublin Quart. Journ. Med. Sciences*, May, 1870.

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56. *State of the Pulse immediately before and immediately after Parturition.*—The pulse during the puerperal state was made the subject of a series of observations by Dr. HÉMEY in 1864, while serving as interne under Dr. Empis, and he believes his observations established two remarkable phenomena: First, the lowering of the pulse (already noted and studied by M. Blot), with regard to which Dr. Hémey says his observations confirm those of Blot. Second, the inequality and irregularity of the pulse, which had not hitherto attracted attention.

Dr. Hémey's observations seem to have been made with very great care, and are recorded with great minuteness of detail, and therefore seem worthy of having an abstract of them recorded here; but the results arrived at are different from those of Dr. M'Clintock, published in this Journal in May, 1861; and also from those arrived at from a series of observations made by the writer of this report in the Coombe Lying-in Hospital.

Dr. Hémey takes 75 as the average pulse of a healthy woman. Before labour it is from 75 to 84; but he does not count any pulse as lowered, unless it is 60 or under, and by adopting this as his standard, he believes he excludes all doubtful cases from his tables. He thinks at least one-sixth of all newly confined women have their pulse lowered. In one case the pulse was as low as 44; in many he found it 48; and in a great number 52. The lowering shows itself most frequently some hours after labour, and continues sometimes without variation; in some it increases during the eight days. At the end of the third, fourth, or fifth day the pulse sometimes becomes relatively more frequent and falls again, or it may preserve this frequency to the end; but these changes seem to depend on accidental circumstances, and independently of such the lowering appears to have its maximum at the end of the second day from labour, and to diminish gradually and cease about the tenth day.

Out of 100 consecutive cases in which the daily state of the pulse was recorded in the Coombe Lying-in Hospital, it was found as low as 60 in five cases and within the first 24 hours after delivery; and in each it had risen to from 70 to 84 on the second day, and maintained this average as long as the patient was in the hospital. In one case the pulse was as low as 56 eight hours after labour. This woman had been delivered in the street, on her way to the hospital. On the second day the pulse was 72, at which it remained till the fourth day, when it fell to 65. On the fifth day it was 72; and on the seventh, which is the last observation recorded, it was 84. This was the only case of the series in which the pulse was under 60.

The duration of labour, unless it be prolonged so as to do local or general injury, does not seem to influence the changes the pulse undergoes, but the occurrence of gastric derangement with headache, of a foul tongue with constipation and hot skin, on the second day may raise a pulse to 80 or 88, which the evening before was only 56, and Dr. Hémey observes, as has already been remarked by M. Blot, this increase of 30 is of more importance than would attach to the total number of 80, and the increase is soon proved to belong to a pathological condition by the action of a purgative which reduces the pulse again to 54 or 60. When there is metritis or sloughing of the vagina, or puerperal fever, the characteristic changes of the pulse are more permanent.

Dr. Hémey combined with his researches on the pulse some observations as to presence of sugar in the urine of women lately confined. M. Blot announced its existence, in a paper read at the Academy in 1856, and M. Lecointe denied it in a communication read in the following June; but in 1859, Professor Bruecke confirmed the statements of M. Blot. Dr. Hémey found that of one hundred newly confined women, twenty-seven had a quantity of sugar, varying from eight to eighteen grammes per litre in their urine; the urine of thirty-five presented traces of it only; and in thirty-eight no appreciable trace of it could be discovered. Its presence was of short duration; even when most abundant, it could be found for a day or two only, and it did not seem to be in any way connected with the secretion of milk, and it did not seem to influence the condition of the pulse, for though in fifteen or twenty-seven cases where it abounded, the pulse was quick; in twelve other cases it was remarkably slow.

With regard to the influence of the secretion of milk, Dr. Hémey found that from the second to the fifth day, the pulse did not undergo any notable change in two hundred and eighty women out of four hundred; he believes, however, that in many cases where the pulse did not seem to undergo any change from the second to the fourth day, it was because the lowering of it was interfered with by the state of the breasts, and he finds the best nurses, and those who have the most abundant supply of milk, are those in whom the pulse is lowest and that without interruption from the second to the tenth day.

The period of pregnancy at which labour occurs does not seem to influence the changes undergone by the pulse in any way. In one case when it occurred at the end of the fifth month in consequence of a fall, the pulse, which before labour was 80, fell to 76, 68, and 52, on the following days, and then rose again to 72; but in other cases of premature labour no lowering of the pulse was observed. Where the fœtus is dead for some time before labour sets in, the lowering of the pulse seems to begin at the time of the child's death, rather than when it is expelled, and Dr. Hémey gives a series of cases illustrative of this as the fact is made use of in progress of the essay.

After-pains may not only, as M. Blot has already remarked, coincide with a slow pulse; but, according to Dr. Hémey's observations, when they occur independently of any other pathological condition, they are rarely accompanied by a quick pulse. Moral emotions, however, have a great influence in raising the pulse; diet does not affect it unless the process of digestion be deranged, and then the pulse is more easily affected in the puerperal state than it would be at other times. Change of position will also affect it more notably at this time, so that a woman lying down may have her pulse only 68, and it may rise to 104 when she sits up. Primiparæ seem less disposed to have the pulse lowered than multiparæ, perhaps because the former are more subject to the multitude of little causes which tend to accelerate it.

As a prognostic sign, Dr. Hémey looks on this lowering of the pulse as most favourable. It occurs most frequently when the health of puerperal women is best, and it is oftenest met with among the vigorous and those who have the most abundant supply of milk; and he has never known a woman who presented it to be affected with puerperal symptoms of any gravity.

As to the cause of this lowering of the pulse, Dr. Hémey argues that it depends on an increased arterial tension caused by the rapid withdrawal from the general circulation of a certain number of arterial trunks; that is to say an increased arterial tension caused by the large quantity of blood hitherto required by the uterus being thrown into the general circulation. It may be regarded as proved, he says, and it has been demonstrated by the sphygmograph, that the frequency of the pulse is in the inverse ratio to the arterial tension; and it can also be demonstrated by the same instrument, that the arterial tension is increased by compressing one or more arterial trunks, so as to withdraw them from the general circulation. Marey and Blot, he says, assign the same cause; but he finds new proofs of its being the cause in the facts related in reference to premature confinements; to the cases where the child died before birth; and in the effect of the seasons. In premature confinement the same cause for the increased arterial tension exists as when birth takes place at the full term, and when the child dies before birth it is then the supply of blood to the uterus is diminished, and consequently it is then the pulse is lowered, and not after the child is expelled; and it is well known that cold increases the arterial tension, and the lowering of the pulse is most marked in the cold seasons.

The analysis of four hundred observations gives ninety-four cases in which the rhythm of the pulse was altered; most frequently it was irregular and uneven at the same time; exceptionally it was irregular or unequal only. Dr. Hémey has met with these phenomena but twice before labour, and in both cases the patient had old organic disease of the heart. In all the other cases the irregularity showed itself from the first to the tenth day after labour, with the exception of three in which it did not appear until the fifteenth or eighteenth day; but it is to be noted that very few of the observations extended beyond the twelfth day, so that the extreme limit of the occurrence has not been fixed. In some cases the irregularity disappears quickly, but may return soon, and it is rare to find it persist more than six days without interruption. The irregularity and inequality may accompany one another, or exist separately, and these modifications always supervene very rapidly on one another. Of the ninety-four cases, the irregularity without inequality was only observed in twelve, and the inequality without irregularity in eight; very often the irregularity and inequality exist with the slowness of the pulse, but the slowness may be found without the others, and they may occur with slight acceleration of the pulse.

The prolongation of labour does not of itself seem to influence these phenomena, but when it causes any injurious consequences the irregularity disappears. It is in fact rare to find a pulse febrile and irregular. There does not seem to be any relation between these phenomena and the secretion of milk, except that milk fever, like all other febrile conditions, will cause them to disappear; neither does the term of pregnancy, nor the state of the life or death of the child seem to produce any effect; nor do moral emotions, except so far as by quickening the pulse they cause irregularities to disappear. Pursuing the investigation under the same heads as in reference to the slowness of the pulse, Dr. Hémey does not find that the diet or age of the patient, primiparity or multiparity, nor yet the season of the year exercises any influence; nor does he think the presence of these phenomena indicates anything unfavourable as to the recovery of the patient; and he is unable to suggest any cause for them beyond some obscure condition of the nervous system.—*Dublin Quart. Journ. Med. Science*, May, 1870, from *Archives Gén. de Méd.*

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57. *Chloral in Puerperal Convulsions.*—Baron PAUL VON SERGDEWITZ, of Bale, communicated to the Obstetrical Society of London a case of violent convulsions in a woman suffering from endocarditis subsequent to delivery, in which chloral at once arrested the fits, after various other remedies had been used in vain.—*Brit. Med. Journ.*

Dr. MILNE has also used chloral with success in a case of puerperal convulsions. "The case," he says, "was a purely psychical one, due to the shock of a sudden, loud, and unexpected sound, and therefore well fitted to test the powers of the medicine, these cases being deemed rather obstinate. On the other hand, there was no albuminuria, and the absence of this complication lessened in some degree the seriousness of the case, and increased its amenableness to remedies. The benefit I obtained from the chloral was considerable, although not sufficient, in my estimation, to send one into ecstasies, or impress one with the belief that a novel cure had been brought before us of unexampled power."—*Edinburgh Med. Journ.*, May, 1870.

Dr. X., of Bapaume, communicated to the Imperial Surgical Society (March 23, 1870), through M. Demarquay, a very interesting case of puerperal eclampsia in a primipara. The convulsions came on during labour and continued after delivery. All the ordinary remedies having failed to afford relief, chloral was had recourse to, in increasing doses commencing with four grammes. When the dose reached six grammes, the patient fell into a deep and quiet sleep, which continued for twelve hours. After awakening she had slight attacks which were relieved by chloral, and complete recovery ensued.—*L'Union Med.* April 23, 1870.

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58. *Fundal Endometritis.*—Dr. Routh read a paper on this affection before the Obstetrical Society of London, April 6, 1870. After referring to three papers formerly read to the Society by Drs. Tilt, Meadows, and the President, on Gooch's irritable uterus, and showing how the three authors differed in their views, he stated that the disease in most of these cases was inflammation of the lining membrane of the fundus, and not flexions, or merely uterine congestions or inflammations. Dr. Routh then proceeded to explain Dr. Snow Beck's description of the arrangement of the nerves of the uterus, showing that the fundus was supplied by a distinct set of nerves in direct relation with the semilunar ganglia, and showed how their arrangements explained the radiations of pain. He then pointed out the gravity of fundal endometritis as compared to affections of the cervix, and specified the symptoms. After a short reference to the microscopical character of the discharge, he stated that there were four varieties of the disease which he had observed. 1. The convulsive form, in which the fundal pain, passing down one of the thighs, increased by passing the sound, etc., was accompanied by a variety of convulsive seizures, such as spasmodic vomitings, tetanus, hysterical fits with or without mania, up to epileptoid fits and catalepsy; these symptoms persisting for some time until the catamenial function was fully established, or until flooding occurred. 2. Inflammation of the fundal membrane with increased secretion, accumulation of this in the cavity from obstruction at the inner os, giving rise to symptoms of pregnancy, or even labour, with intense fundal pain, all relieved by a sudden gush of discharge, persisting for months and often recurring. 3. Chronic cases of Gooch's irritable uterus, with more or less complete loss of the power of walking. Here, also, the inflammation of the fundus was unmistakable. 4. Cases of acute fundal endometritis, which sometimes rapidly passed into metroperitonitis, generally fatal, although sometimes assuming a more chronic type. Cases of all these varieties were given, and the treatment of each was passed in review, being mainly local depletion by leeches, blisters, and occasionally dilatation by sponge-tents, the use of the hysterotome, anodynes, and measures locally antiphlogistic and calculated to produce a copious catamenial flow.

Dr. Tilt agreed with Dr. Routh as to the frequency and importance of endometritis, and said that it was generally confounded with inflammation of the cervix. He thought that for all practical purposes it was sufficient to divide the disease into acute, subacute, and chronic. He had found acute endometritis to be very rare, and his worst cases had occurred in young unmarried women. He considered a sudden gush of fluid, after sharp uterine pain, to be the best sign of subacute or chronic endometritis; and that, when the gentlest pressure of the finger over the enlarged fundus gave exquisite pain, the wall of the womb should be considered diseased as well as the lining membrane. Dr. Tilt was convinced that many cases of subacute or chronic endometritis were best treated by the leeches, injections, etc., adopted to cure the coinciding inflammation of the cervix. The next indication was to secure free exit of the discharge, which would permit the safe injection into the uterus of a solution of nitrate of silver or tincture of iodine in cases that would not otherwise recover.—*Brit. Med. Journ.*, May 14, 1870.

59. *Acute Leucocythæmia in Pregnant Women.*—Dr. Paterson read before the Medico-Chirurgical Society of Edinburgh, an interesting paper on this disease. The first case he had seen was a strong young woman, aged 20, who had been stout and ruddy, but towards the end of her pregnancy became suddenly sallow. After a normal labour, great enlargement of the glands of the neck came on; and on the eighteenth day he found that her blood contained only one-fourth of red corpuscles to three-fourths of white. The spleen was very large, and she died asphyxiated. The second case was also a young primipara; and he saw her at the request of a midwife, on account of hemorrhage. She was also sallow, with a large spleen and liver, and with blood resembling that of the preceding case. Eventually, the glands of her throat and neck also swelled, and she died on the fourteenth day. The third case had been watched from the outset; the blood was examined early in the disease; and, with great care, generous diet, the use of iron and other tonics, and the free administration of ergot during labour. she recovered, and is still alive. In all the three cases, the blood of the fœtus was healthy, containing no abnormal proportion of white corpuscles—illustrating the fact that no direct communication exists between the maternal and fœtal circulations. Dr. Matthews Duncan remarked on the interesting nature of the cases, but regretted that *post-mortem* examinations had not been obtained; as, without them, the absence of some more tangible cause of death was not proved.—*British Med. Journ.*, June 4, 1870.

60. *The Colpeurynter to remedy False Positions of Uterus.*—In *Oesterr. Zietschr. f. Pract. Heilk.*, 1869, Dr. Kuchenmeister recommends the colpeurynter, after considerable experience in its use, as an admirable instrument for the rectification as well in cases of simple version and flexion of the uterus, as for exerting an adequate amount of pressure for the removal of adhesions and old exudations. The bag of the instrument is of different sizes. The largest will be the best adapted for the accomplishment of this latter object. Filled with water it should be inserted daily and retained for some hours—when tolerated by the patient, during the entire day, both when she is moving about and when she is sitting or lying. — *Centralblatt. f. d. Medicin. Wissenschaften.*, March 12, 1870. D. F. C.

61. *The Stethoscope as a Means of Ascertaining the Sex of the Child.*—Dr. James Cumming communicated to the Obstetrical Society of Edinburgh some interesting investigations on this subject.

TABLE I., MALES.

The first case was one of twins, the heart of the one fœtus was heard in the right groin beating 110 in the minute, and on delivery it proved to be a male; the second heart was heard in the left hypochondrium beating 154, and on delivery it was found to be a female.

2. Fœtal pulsation, 138 per minute.
3. " " 138 "
4. " " 135 "
5. " " 130 "
6. " " 130 "
7. " " 132 "
8. " " 132 "
9. " " 140 "
10. " " 132 "
11. " " 140 "
12. " " 136 "
13. " " 133 "
14. " " 134 "
15. Fœtal pulsation, 116 per minute.
16. " " 120 "
17. " " 120 "
18. " " 138 "
19. " " 125 "
20. " " 140 "
21. " " 140 "
22. " " 137 "
23. " " 140 "
24. " " 141 "
25. " " 122 "
26. " " 120 "

TABLE II., FEMALES.

1.	Fœtal pulsation,	150	per minute.	9.	Fœtal pulsation,	140	per minute.
2.	" "	142	"	10.	" "	152	"
3.	" "	140	"	11.	" "	140	"
4.	" "	150	"	12.	" "	143	"
5.	" "	144	"	13.	" "	144	"
6.	" "	140	"	14.	" "	141	"
7.	" "	140	"	15.	" "	160	"
8.	" "	144	"				

From these two tables it seems that when the pulsation varies from 120 to 140, the probability is that the fœtus will be a male, and when the pulsation varies from 140 to 160, the fœtus will likely be found to be a female. But there are some exceptions to these facts. In three cases in which the pulsation was from 150 to 160, the fœtus proved to be a male; and in fifteen cases in which the pulsation varied from 116 to 138, the fœtuses were found to be females. It therefore appears that there is less frequent variation in the pulsation in the male fœtus than in the female; or rather that there are fewer cases in which the heart's action exceeds 140 in the male, than that it falls below that number in the female.

These tables are exceedingly interesting, however, as far as they go; and the subject is well worthy further attention.—*Edin. Med. Journ.*, June, 1870.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

62. *Toxic Action of Pyrogallic Acid.*—In a communication made to the Academy of Sciences on the 1st of March, 1869, M. J. Personne proposed that poisoning by phosphorus should be treated by the administration of oil of turpentine, on the grounds that phosphorus produces its poisonous effects by removing oxygen from the blood, and that this action is prevented by turpentine. It occurred to him that this view of the theory of phosphorus-poisoning would be greatly strengthened were similar physiological effects found to be produced by other substances, which agree with phosphorus in its deoxidizing property, but present no other remarkable resemblance to it. With the object of ascertaining this, M. Personne made some experiments with pyrogallic acid, the results of which he now briefly narrates (*Comptes Rendus*, 4 Octobre, 1869, p. 749). Two dogs received by injection into the stomach 30 and 60 grains respectively of pyrogallic acid, in a large quantity of water. Poisonous symptoms quickly supervened in both, and these symptoms closely resembled those that are caused by phosphorus. After death, the liver was found greatly enlarged, the heart soft and friable and filled with clots of black blood, and the bladder contained a brown fluid resembling that which is obtained when an alkaline solution of pyrogallic acid is shaken up with air. A microscopic examination of the heart and liver revealed an immense quantity of fat. The muscular fibres of the heart were concealed by fat globules; and the liver of the dog that had received 30 grains weighed nearly 8000 grains, or about $\frac{1}{16}$th of the whole weight of the animal. It is thus shown that two substances which agree in little else than their power of abstracting oxygen from the air cause nearly identical symptoms and morbid changes in the living economy, notwithstanding their great dissimilarity in general properties and in origin. M. Personne believes that the above results distinctly prove that both phosphorus and pyrogallic acid produce death by asphyxia, which may be either rapid or slow, according as the quantity absorbed is such as to deprive the blood of its oxygen with greater or less rapidity.—*Journal of Anat. and Phys.*, May, 1870.

63. *Poisoning by Carbolic Acid.*—The subject of tar-poisoning, which is now attracting a good deal of attention in connection with the extensive employ-

ment of carbolic acid, is not by any means a novel one. It has been long well known that various preparations of tar, if applied freely to the skin, were capable of absorption, and might bring about certain special symptoms. The reader will find an account of these in Hebra's work on Skin-Diseases, vol. ii. p. 43. Numerous observers have recently met with cases in connection with the use of carbolic acid; and we publish this week an interesting account of one, by Dr. Wallace, of Liverpool.

We may briefly advert to some of the points to which future observers should direct their attention. The most constant symptom is *black* urine. It has been proved that this occurs in an equally marked form, whether tar or some colourless preparation of it be the agent employed. It has been noticed over and over again from carbolic acid. There is yet some hesitation on the part of chemists in deciding as to the exact cause of the colour. Dr. Stevenson, of Guy's Hospital, gives his opinion against the presence of colouring matter from the blood. He proved that the black urine did not contain more than the normal quantity of iron. We may note, also, that black urine does not usually earn the epithet of "smoky," since it does not become opaque. Sometimes it is perfectly bright. It rarely contains albumen. The hypothesis that the colouring matter is derived from the tar itself seems the most probable. Dr. Hughes proved years ago that creasote given internally produced exactly the same changes.

Next, we want careful observations as to the constitutional symptoms which attend this condition of urine. In slight cases there appear to be none; but in the more severe, vomiting, delirium, and even tendency to coma, may be induced. Does the condition of slight blood-poisoning by carbolic acid prejudice, or otherwise, a patient's chance of recovery after an operation?

Thirdly, we want more information as to the occurrence of the symptoms, referred to in connection with different forms of solution of carbolic acid. A weak watery solution freely used appears to involve the most risk; and some believe that with oil there is but little, and in the form of plaster none.

Lastly, it is well worth investigation, whether the use of carbolic acid and its allies may not exert considerable influence on certain diseases of the nervous system. We noticed a few weeks ago the remarkable rapidity with which it causes the skin to tingle after immersion, and the fact that it would induce aching of nerves in the limb far above the parts which had been immersed.

In conclusion, we must offer a caution as to the too free external use of this agent; it would appear to be quite possible to encounter, inadvertently, considerable risk. Although we are not aware of any cases of actual death from its legitimate surgical use, we know of several in which alarming symptoms occurred. Dogs are very easily killed by carbolic acid baths. The remedy is the free use of diluents taken by the mouth; and it is equally useful if employed as a precaution.—*Brit. Med. Journal*, April 30, 1870.

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64. *Poisoning by Phosphorated Ether.*—At a meeting of the Imperial Academy of Medicine, January 25, M. MARRIOTTE communicated an observation on toxic symptoms produced by phosphorated ether. They occurred in a patient suffering from locomotor ataxy, who, being a prey to an access of the violent darting pains characteristic of that disease, had, in accordance with the advice of his physician, taken every hour, in soup, a tablespoonful of a mixture composed of four grammes of phosphorated ether, mint water, and syrup of gum, of each sixty-four grammes. The darting pains disappeared; but the last dose of the medicine was followed by the ordinary symptoms of irritant poisoning. The patient was for two or three days in a very precarious state, but finally recovered, under suitable treatment.

M. DEVERGIE, in the course of the discussion which followed the communication, observed that phosphorated ether was a very bad preparation, and one which should never be employed. The ether contained in it volatilized, and the phosphorus remained, consequently its strength was quite uncertain.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Treatment of Carbuncle by Pressure. By M. L. Bennett, M. D., of Burdett, N. Y.

Mr. J. D. consulted me November 19, 1869, for a carbuncle on the back of the neck over the second cervical vertebra, which had first appeared a week before, but presented no sign of opening; the diameter of the tumour was three inches; it was quite painful, so much so that the patient could not sleep. I advised pressure by means of adhesive strips applied concentrically, commencing at the margin of the tumour with narrow strips overlapping each other slightly, until within half an inch of centre, which space was left for the discharge. The other sides were treated in the same manner.

November 21. Found tumour an inch in diameter, and discharging from ten small openings, $\frac{1}{8}$ of an inch in diameter. He said he had been free from pain since I applied the pressure, and was able to sleep; the strips were very loose; applied new ones.

23*d.* Carbuncle reduced to the size of an ordinary boil; the integuments soft and yielding; the ten small openings spoken of in last visit had consolidated into one large one, the size of a dime, and discharging freely of pus; reapplied the strips and ordered a poultice of soap and sugar to be applied to the part left bare of adhesive strips.

25*th.* Swelling nearly gone; the dead tissue easily detached, leaving a cavity large enough to receive a good-sized horse chestnut; reapplied the strips, requesting him to use the poultice as before; saw him again in four days; the swelling was all gone and the opening nearly healed.

This mode of treating carbuncle, as recommended by Dr. O'Ferrall, of Dublin, Dr. John Ashhurst, Jr., of the Episcopal Hospital, and others, should, I think, supersede all other methods. It relieves the patient of pain and cures in less time than incisions, and at the same time avoids the risk incurred in making incisions on aged persons.

Clot in the Heart during Parturition. By W. F. Sanford, M. D., of Greenpoint, Brooklyn, N. Y.

At 6 A. M., Nov. 30th, I was called to attend Mrs. A., an apparently healthy woman, æt. thirty-four, who had not expected to be confined until two or three weeks later. She has three living healthy children, and her previous labours were said to have been perfectly normal. Her friends informed me that for many weeks she had been in a very melancholy state of mind, and strangely firm in the conviction, in spite of all reasoning, that she should die in the expected confinement. I found her tossing wildly about the bed in a most hysterical manner, and wishing to be let alone "to die." She struggled violently to oppose an examination, but after much trouble I succeeded sufficiently to find the os uteri slightly dilated and the head presenting. There was considerable hemorrhage, with no visible cause, excepting her violent tossing, but this soon ceased as the head descended.

As the severe bearing-down pains came on, she was more quiet, and at 9½ A. M. she was delivered of a dead child, well formed, but evidently for many hours lifeless. I then learned that she had had a "slight fall" two days previous, since which time she had "felt no life."

After the delivery of the "after-birth," which gave a little trouble, the uterus contracted well, and the patient was quiet and apologized for her strange fears and behaviour. I left her about an hour after the birth of the child. As she was very weak, though feeling well, I ordered brandy to be given her in small doses often repeated until she became stronger.

Soon after reaching home word came that she was still weaker, and I ordered spts. ammoniæ aromat. to be given with the brandy until I could return. At 11.30 I again saw her. She was raving and tossing about the bed in a most violent manner, complaining of severe pains in her back, and wildly gasping for air. I examined the uterus, fearing internal hemorrhage, but found it hard and small. I then gave her large doses of morphia, but with no effect. Finding this fail, I put her under the influence of chloroform, which quieted her readily, and as she recovered from its influence she was much better, and I left her at 1.30 P. M.

She remained comparatively quiet, but complaining of much pain, until about 4 o'clock, when she eagerly wished me to be sent for. I found her in a most alarming state, shrieking for help, and gasping for breath; face livid, and covered with cold sweat. I again gave her chloroform, but soon stopped, as it seemed to excite motion. She was then, as her friends expressed it, "more quiet and like herself" than since the first hour after her delivery. But about 5 o'clock she had a slight convulsion and died comatose.

Post-mortem made with the assistance of Dr. Van Gieson, twenty hours after death, revealed a most characteristic, *ante-mortem*, fibrinous clot in the right ventricle of the heart, making also a complete cast of the pulmonary artery for an inch and a half, and finally completely cutting off the supply of blood to the lungs.

Intra-uterine Meningeal Apoplexy, caused by Violence at Seven Months, producing General Paralysis, Talipes Calcaneus of both Feet, and Deformity of both Hands; Death one hour after birth by Apnœa. By CHARLES A. LEALE, M.D., Fellow of the New York Academy of Medicine, Physician to N. W. Dispensary, New York, etc.

February 22, 1870, I was called to attend Mrs. A., aged 33, multipara, whom I was told had been in labour for several hours. On arrival, the os was found to be dilating, and the patient was having moderately severe uterine contractions. Upon a second examination a few moments after, the os was found well dilated, and I endeavoured to diagnosticate the presentation, but found presenting a soft tumour, about seven inches in circumference, through which could be felt the cranial bones, but not with sufficient exactness to satisfy me in regard to the particular portion presenting, so I determined to wait a proper length of time for nature to reveal the secret. After waiting half an hour, and as no progress had been made, I gave pulv. secale cornuti ℨj in infusion, which, in about fifteen minutes, increased the uterine contractions sufficiently to expel the head of the fœtus; but to complete labour considerable manipular force was necessary, when a monster of huge dimensions was brought to view.

The child did not make the slightest effort to respire. There was pulsation in the funis. Flagellation, and alternate sprinkling with hot and cold water, produced a violent spasmodic contraction of the diaphragm, which caused the entire infra-mammary region to be very much depressed. The condition of atelectasis pulmonum continued, although the child had been born about five minutes. The cord was now severed, and about half an ounce of blood was allowed to flow slowly from the fœtal extremity. The tongue, which had again fallen back, was drawn forward to its normal position in the mouth. A sudden spirt of about a drachm more of blood was let flow, when the constriction was relieved. and the child began to breathe very feebly, and so continued its respirations at long intervals. The heart beat very feebly. The pupils were widely dilated, did not respond to the influence of a bright light, and the child was suffering from all the symptoms of severe compression of the brain. This condition lasted for one hour, when the child ceased breathing.

Necropsy.—Male, born at full time; weight eight and a half pounds; body and limbs abnormally long, measuring from head to heel twenty-one inches; very imperfectly nourished; atrophy of muscles; very little adipose tissue.

Head. Occipito-frontal measurement, 14½ inches.
Biparietal, " 12 "

The flexor muscles of the hands and feet were very much contracted, causing luxations of each of these four joints; the palmar surfaces of the hands were resting directly against the forearms, and it required considerable pressure to extend them to their normal positions; the bones of all four extremities were abnormally long, the forefingers being two inches, and the thumbs one and a half inches in length.

The feet were in the true position for talipes calcaneus; the great toe, for its entire length, resting against the tibia. The foot was four and a half inches, and the great toe one and a half inches in length. Upon endeavouring to bring the foot in its normal position, the dislocation of the lower end of the tibia backwards was increased.

The bones were normally ossified, and, from appearances, it could easily be conceived that the fœtus was perfect up to the time of reception of injury.

The tumour on the head, situated directly over the right parietal protuberance, was now examined, and, as before stated, was seven inches in circumference. It fluctuated, and would partly disappear upon firm, continued pressure. An incision, about five inches in length, was made directly over it, when the galea aponeurotica was found to be pressed up, and through its thin walls a liquid was easily detected. To prevent its destruction, if possible, a counter opening was made directly through the soft bones, when, immediately, dark, venous blood oozed out. By pressure on the outside of the tumour it was easily emptied by a small opening into the cranial cavity. The entire calvarium was now removed. There was quite a serous infiltration in the arachnoid. The vessels of the pia mater were considerably congested. The entire brain was removed, and, when freed from extraneous blood, weighed thirteen and three-quarter ounces. The base of the brain was in a normal condition, no extravasations or clots being found. Upon slicing the cerebrum, it was found abnormally softened, but, otherwise, nothing wrong was discovered.

The mother is a very healthy woman. Her four previous labours had been natural, and the children born were perfect. She had enjoyed excellent health during her pregnancy with this child, until seven months, when, while returning from Brooklyn on one of the ferries, she received a severe contusion. As the boat approached the dock, a violent current of wind caused the end of the pier to be violently struck; just at that moment she was standing at the door, and was thrown with great violence against the edge of it, receiving the entire effect upon her abdomen. She fainted, and it was several minutes before she was able to rise and ride to her home. From this time she felt the most feeble motion only of the fœtus, although it had for the two previous months been quite active; in fact she often supposed it dead, notwithstanding she grew considerably in size.

Renal Abscess, discharging externally for six years. Reported by J. STOCKTON HOUGH, M. D., late Resident Physician to Philadelphia Hospital.

C. B., æt. 47, was admitted into the Surgical Ward of the Philadelphia Hospital, March 17, 1869, at which time she suffered from a discharge of pus from an opening in the right lumbar region, just above the crest of the ilium, supposed to be due to the necrosis of the last-named bone. No other diagnosis had been made until the *post-mortem* examination revealed the nature of the affection.

She had been blind for eight years. At the time of admission she had also an ulcer on her leg, which was healed in five days. After this the quantity discharged from the abscess increased six ounces per day. She had not been confined to her bed until she came into the hospital. No difficulty in passing her water until the last two days.

This discharge of pus had been constant, though variable in quantity for a period of six years, increasing the last month. She died from pure exhaustion, four months after her admission.

The *post-mortem* examination revealed no other lesion than that of the kidney on the right side, which was enlarged, and contained numerous abscesses, in one of which was found a triangular calculus, about the size of a walnut. The fistulous opening was not direct, but quite oblique, admitting a fine probe, which probably struck the calculus and gave the impression that the bone was exposed, which led to the error in diagnosis. It is exceedingly rare to find abscess of the kidney discharging externally for so protracted a period.

Case of Congenital Absence of Uterus and Ovaries. By S. HERTZ, M. D, of Boonville, Indiana.

Miss E., æt. 40, unmarried, had always enjoyed good health till within the last year of her life. A few months previous to her death she came under my care for a slight dyspeptic disorder, which, on close examination, proved to be due to compression of the stomach consequent upon an enormously enlarged cancerous liver. There was nothing in the patient's general appearance indicative of serious trouble, and had not physical signs revealed the condition of the liver, it would not have been suspected. From the time she first sought medical aid up to the time of her death, three months afterwards, there was little in the patient's general aspect to occasion alarm, except the dyspnœa occasioned by the enlarged liver.

The *post-mortem* examination made by my friends, Drs. Barker, Darby, and myself, showed the liver to be greatly enlarged by cancerous deposit;

stomach and intestines free from any deposit ; kidneys somewhat enlarged and indurated. The chief point of interest, however, was a complete absence of the uterus and ovaries. The vagina was normal, both as regards length and capacity, terminating above in a cul-de-sac. The clitoris was well developed, together with the labia and mons veneris. The breasts were large and plump, the whole external aspect attested the attributes of a well-formed woman.

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Fibro-cystic Disease of the Ovary, with Post-mortem Examination. By S. L. Blatchly, M. D., of Sparta, Washington County, Pa.

In the early part of April, 1866, I was called to see Mrs. M., in consultation with my friend, Dr. Strause. She reported some enlargement in the left iliac region, which had existed for about two years.

On examination we decided the case to be one of ovarian enlargement, from three to four inches in diameter. Nothing special occurred in the case, except a gradual enlargement, for some three years, when I was hastily summoned to see the patient again, and found her in the most extreme agony. She said the tumour had broken, and she could feel the water moving in her bowels whenever she turned, and could not feel the tumour any more. Very great pain, tenderness, tension, and distension now existed, which precluded deep pressure on digital examination. Treated the case, for the time, as one of peritoneal inflammation. In five or six days the patient had much improved, and now with some difficulty I could discover the tumour, much smaller than before, and somewhat flaccid. Soon the tumour began to enlarge, and nineteen days after the first rupture a second took place, with a recurrence of all the unpleasant symptoms as detailed before. I again treated her as before, with like good effects.

She now had a short respite from her extreme suffering, of three to four weeks, after which the cyst again gradually filled, insomuch as to require paracentesis that some relief might be obtained, which was performed in the line of the linea alba, and six quarts of fluid removed, giving temporary ease. The cyst rapidly filled again, and the trocar introduced at the same point as before, but this time failed to enter the cyst, and the instrument giving the impression of passing into a fibrous body. Still hoping to relieve her sufferings, I again inserted my trocar into the left iliac region and drew off five quarts of fluid. The right side not lessening in proportion, after a few days I introduced the trocar into the right iliac region and removed about eight quarts more of fluid. During all this time there was evidence of more or less irritation and probable inflammation.

She gradually sank, and died in a few days.

Post-mortem nine hours after death.—In presence of Drs. Strause, Cary, and Sharp. The tumour was of fibrous character with numerous cysts of various sizes, containing dark bloody serum. On breaking up the adhesions between the tumour and the peritoneum, the tumour, intestines, spleen, pancreas, portion of liver, and stomach, were found agglutinated in one general mass.

On removing the tumour as best I could, and tracing it to its origin, it was found to have originated in the left ovary and Fallopian tube. The ovary was broken down in its central portion, and contained bloody pus. The fundus of the uterus was somewhat enlarged, and contained in its structure two fibrous tumours, $1\frac{1}{4}$ and $\frac{1}{2}$ inch in diameter.

At the entrance of the left Fallopian tube there was a small sac of black grumous matter, and midway in the uterine canal there was complete stricture; right ovary somewhat diseased, omentum almost entirely absorbed, and the vessels of the abdominal viscera completely obliterated; liver studded over with small hard bodies of bony consistence; gall-bladder largely distended; spleen and pancreas healthy, but completely adherent to the diseased structure; kidneys normal; bladder somewhat constricted; small and large intestines so completely imbedded in the tumour I could not separate them; lungs sound. The extensive adhesions in the case were, no doubt, the result of the spontaneous rupturing of the cyst, thereby causing more or less inflammation, which resulted in the remarkable and extensive adhesions. The post-mortem developments in this case, together with the phenomena following the spontaneous rupturing of the cyst, would seem to contraindicate any operation for the successful removal of the tumour, after such rupturing had taken place, inasmuch as the inflammation consequent on the operation, as also on the rupturing of the cyst, would compromise the life of the subject.

DOMESTIC SUMMARY.

Bromide of Potassium in Saccharine Diabetes.—The No. of the *American Practitioner* for January last contains an interesting paper on this subject by Prof. AUSTIN FLINT, of New York. He relates three cases treated by the bromide in doses of 15 to 20 grains, three times a day, combined with ordinary diabetic diet. In each there was a rapid diminution of thirst, a decrease in the specific gravity of the urine, and an improvement in the general health.

In one of the cases there was a remarkably rapid and great improvement, but, Dr. F. remarks, "it is by no means as yet certain that the improvement is not chiefly or entirely due to the dietetic management. The case affords a striking example of the tolerance of an anti-diabetic diet. The patient, in addition to all kinds of meat, inclusive of fish, oysters, and eggs, is allowed celery, lettuce, onions, cauliflower, tomatoes, and sour apples. The last-named article, eaten raw and roasted, he finds a very good substitute for potatoes. He takes tea and coffee with cream. He eats butter freely. A small quantity of toasted bread is allowed. Camplin's bran-bread he found unpalatable. With this bill of fare he is thus far perfectly satisfied to give up sugar, and, with the exception of a little bread, all articles abounding in starch. A little sherry or claret wine is not interdicted."

Dr. F. states that his "object in giving an account of these cases is not to claim in behalf of the bromide of potassium a special curative agency in saccharine diabetes; but to suggest to physicians to make trial of this remedy, in order to determine whether it be not entitled to be classed with other remedies which are sometimes useful. In the first of the three cases its usefulness was apparently clearly manifested."

Bromide of Potassium in Sick-headache.—Dr. L. P. YANDELL recommends (*American Practitioner*, February, 1870) the bromide of potassium as a cure for sick-headache, and states he had been subject for more than half a century to that affection, when at the suggestion of a medical friend he took half a drachm of bromide of potassium with the happiest effect. He has since resorted to the same remedy on various occasions with equal benefit.

Dr. J. S. DAVIS, of Iuka, Mississippi, states (*American Practitioner*, June, 1870) that he has fully verified the value of the bromide in such cases, and has never found anything comparable to it. He adds: "My wife has been subject to and sorely afflicted with sick-headache for more than twenty-five years, which has been returning with shorter and shorter intervals for years, until of late a week never passed without a severe attack, and sometimes two or more in one week. For the last four weeks she has been taking the bromide, in five or six grain doses, three times daily, and has never had the slightest return since she has been on its use."

Permanganate of Potassa in Oxaluria.—Dr. H. S. Thorne relates (*Michigan Univ. Med. Journal*, May, 1870) a case of oxaluria in which he used the permanganate with the most happy result. Dr. Rose indorses its value. It should be given in half-grain doses dissolved in water thrice daily, and always on an empty stomach; for in contact with organic matter it is stated to be decomposed, yielding its oxygen to any substance that will receive it. It is given on the hypothesis that uric and oxalic acid occur as the result of a deficient oxidation.

Hydrate of Chloral.—In a very interesting paper on this subject (*Boston Medical and Surgical Journal*, June 16, 1870), Dr. Edward H. Clarke indorses the conclusions arrived at by Dr. DaCosta in his article on chloral in the No. of this Journal for April, 1870. Dr. Clarke details the clinical history of nine cases which illustrate most of the physiological actions of therapeutic doses of chloral. One of these well illustrates the mutual action between chloral and morphia, which Dr. DaCosta pointed out in his paper. It is "Case VI., *Opium Eating*. An octogenarian lady took morphia by the advice of her physician thirteen or fourteen years ago. She continued to take it of her own accord afterwards, and has persisted in the habit thus acquired. She now takes about two grains of sulphate of morphia every night. In consequence of an attempt to discontinue its use, awhile ago, she became restless, excited, nervous, and sleepless, with symptoms not unlike those of delirium tremens. After two or three days and nights had elapsed without sleep, I gave her 15 grs. of chloral hydrate. This quantity calmed her. A second dose of the same amount was followed by a sleep of several hours. Unfortunately, the habit of taking morphia could not be broken up, and she resumed her customary dose at night. This has quieted and comforted her, but has not always induced sleep. When it has not, 15 grs. of chloral have always been sufficient to put her to sleep in a short time. Less chloral was required to produce sleep when morphia had been previously administered, than when the latter article had not been given."

Dr. Clarke states that a fourth of a grain of one of the salts of morphia, followed in an hour by 15 or 20 grains of hydrate of chloral, will produce a greater anæsthetic and hypnotic effect than a larger dose of either of them given alone. In many cases, where a certain dose of morphia is sufficient to allay pain, but not to produce sleep, it is better to follow the morphia by hydrate of chloral than to repeat the former.

Reliable Preparation of Conium.—Dr. J. C. Reeve, of Dayton, Ohio, calls attention (*The American Practitioner*, June, 1870) to Squibb's fluid extract of conium, made from the unripe fruit or seed, according to the suggestions of Dr. Wm. Manlius Smith, of Manlius, New York. The dose to begin with is five minims, to be gradually increased. Dr. Reeve says: "For *convulsive and irritable coughs* it has proved in our hands a remedy of decided value. We used it during the closing period of an epidemic of hooping-cough, and we believe we saw great benefit from it, although we are not yet ready to abandon belladonna. For the frequent and distressing cough of phthisis and bronchitis we have had frequent recourse to it, and would not willingly do without it. Every one knows the bad effects so often caused by morphia in these diseases, and how very often we cannot resort to it at all. In such cases conium has proved to be everything we could wish—quieting the cough at night, and allowing the patient his much-needed rest, without any constipation, deranged digestion, or other distressing symptoms following."

Method by which After-treatment in Operation for Fistula in Ano is rendered Unnecessary.—Dr. J. J. CHISOLM proposes (*Baltimore Med. Journ.*, Feb. 1870), after the fistulous passage has been laid open, a plan of treatment which he says not only protects the patient from hemorrhage but also does away with the painful daily insertion of lint between the lips of the wound until the latter becomes filled with granulations. Many years ago Dr. C. was induced "to substitute for this annoying, painful, and inefficient dressing, a single application of the liquid persulphate of iron. This was used for the purpose of insuring a surface-sloughing of the sides of the wound, just sufficient to preclude the possibility of the immediate growing together of the recently-cut surfaces, although close apposition be permitted. Long experience has sustained the utility of this application, and this plan of after-dressing, immediately after incising fistula in ano, is now extensively adopted by surgeons in the United States.

"Immediately after making the incision, a large camel-hair brush, or a sponge mop, saturated with the liquid persulphate or perchloride of iron, is drawn through the wound, care being taken to bring the iron styptic cautery in contact with the entire surface. The effect is threefold:—

"1. To cauterize the surfaces and prevent agglutination of the newly-cut walls.

"2. To arrest hemorrhage.

"3. To clot the blood in the wound, and oppose this physical barrier to the approximation of the surfaces.

"Should the hemorrhage be very free, it may be necessary to secure in the wound, for a few hours, a compress of lint, saturated with the iron styptic.

"Beyond this immediate and single application of the iron, no further local treatment will be required. Daily ablutions, either with cold or warm water, as most agreeable to the patient, will be needed for cleanliness. For ordinary cases of fistula in ano, it will not be necessary for the patient to keep the bed, nor even the house, for any length of time; and often business can be resumed the day after the operation."

Improvement of Cammann's Stethoscope.—Dr. THOS. G. SNELLING describes (*Med. Record*, March 15, 1870) a modification of Cammann's stethoscope which he has employed for the past four years, and which, in cases where much accuracy is required, as in examination of heart or lungs, or where it is desired to precisely locate a morbid sound, or in emaciated chests, he has found of great advantage. It can be used also upon an ordinary flexible tube instrument. "It consists simply of an India-rubber rim attached to, and acting as a continuation of the rim or lip of the ordinary mouth of the stethoscope, by which, even by the most gentle pressure, all air is excluded by the elastic expansion of the India-rubber rim.

"Its advantage will be evident at a glance in auscultation over the carotids, where the pressure made by the ordinary unshielded lip of the instrument must cause an adventitious murmur; over the jugulars for venous murmur, over or under the clavicle when a patient is so thin as to preclude the complete adjustment of the ordinary instrument to the exclusion of the air; in patients so emaciated as to make it impossible to apply the sounding tube upon or between the ribs, and where it is desirable to locate a cardiac murmur over one or another valve."

Induction of Premature Delivery as a Prophylactic Resource in Midwifery.—The *New York Medical Journal* (February, 1870) contains an instructive paper on this subject, by Prof. T. GAILLARD THOMAS. "There are," he says, "certain dangers inherent to the process of parturition which, in spite of scientific midwifery and the prophylactic resources of intelligent hygienic management, must forever invest it with importance, and produce a certain loss of life in its performance."

He thinks that, "in most instances, the most serious complications of labour, both as regards mother and child, may be recognized by their peculiar premonitory signs, one, two, or even three months before the end of pregnancy, and being recognized may fortunately often be avoided. My impression is, that nothing will in the future tend to diminish the mortality attendant upon parturition so markedly as the induction of premature delivery for the removal of mother, child, or both, from that condition upon the continuance of which depends the danger which menaces them."

The following list presents the morbid states for which he considers the operation indicated:—

"1. Deformity of the pelvis. 2. Placenta prævia. 3. Aggravated uræmia. 4. Excessive vomiting. 5. Placental apnœa. 6. Commencing epithelioma. 7. Death of child and consequent septicæmia. 8. Threatened death of child. 9. Approaching death of mother. 10. Amniotic dropsy. 11. Previous rupture of uterus or performance of the Cæsarean section. 12. Excessive accidental hemorrhage. 13. Previous difficulty in deliveries of large children, or of children with ossified sutures. 14. Tumours obstructing the pelvis."

Prof. T. discusses each of these conditions in turn, giving clinical cases as instances for a resort to the operation and for such indications as appear to require illustration from their novelty or the doubtfulness of their claims.

Prof. T. considers "the end of the eighth month, *i.e.*, the ninth menstrual epoch, is the most favourable time for the induction of premature labour."

Prof. T. makes a marked distinction between premature labour and abortion. "The former," he remarks, "denotes a premature expulsion of the contents of the uterus; the latter, a failure in the results of utero-gestation. Consequently, the induction of premature labour is in one essential respect different from that of abortion, and is called for in the fulfilment of different indications. The former, being resorted to after the period of viability of the child, does not involve the sacrifice of its life, but often adds to its prospect of living by removal of it from a position of danger, and sometimes even of certain death; or, to put the matter more tersely, abortion is resorted to in the interest of the mother alone at the expense of the life of the child: premature labour is induced sometimes for the sake of the mother, sometimes for that of the child, and sometimes in the interest of both. For the sake of preventing irrelevancy of discussion in any argument which may be suggested by my remarks, I would particularly point out the fact, that the subject which I have undertaken is strictly limited to the consideration of the induction of premature labour, and in no way concerns that of the induction of abortion."

Intra-Uterine Medication.—The June No. of the *New York Medical Journal* contains an interesting paper on this subject by Dr. J. C. NOTT. He points out the dangers of intra-uterine injections, and says: "It is admitted by all cautious practitioners, that injecting the uterus is often a somewhat hazardous operation, that may, when we see no reason to anticipate it, be followed by disagreeable consequences; and it is also admitted that to insure safety (if some kind of double canula be not used) it is indispensable that the cervical canal should be well open, so as to allow free regurgitation of the injected fluid."

He shows "that in certain morbid conditions of the uterus (conditions, too, which there is reason to believe are not very rare), it is in the best possible state for admission into the circulation of air, or any fluid that may be forced upon its denuded vessels.

"It has already been stated that the normal uterus, between the menstrual periods, has an internal capacity of not more than ten or twelve minims; but, while labouring under chronic catarrh and other conditions above alluded to, the organ may be found in a very different state. It becomes more or less enlarged, the walls sometimes thinned, the cavity dilated, the tissues softened, and in a condition to yield more readily to the distending force of a syringe. Even when the depth of the uterus, measured with the sound, is increased by disease an inch beyond its normal depth, its cavity is still a small one—say one to three drachms. The greatest dilatation usually occurs in cases of retroflexion, where the fundus is in a pendent position, and the cervix more or less mechanically obstructed. In such cases the body of the uterus is often dilated; the secretions are incarcerated and become putrid.

"Suppose we determine to inject a medicated fluid into one of these relaxed, denuded uteri, with its utricular follicles gaping and its capillaries and veins exposed as we have described, according to Arthur Farre and other good authorities. The pipe of the syringe is introduced through the long, narrow cervix up the fundus, the pipe pretty well filling up the cervical canal. The piston of the syringe is then forced down, and what follows? Sufficient fluid must be injected to fill the cavity of the body and distend it, before the cervix is sufficiently forced open to allow the fluid to regurgitate by the side of the pipe. Numerous instances have occurred under such circumstances, in which not only severe uterine colics have followed, but almost instant collapse, and even death in a short time."

With proper caution Dr. N. thinks uterine injections may be, in some cases, advantageously resorted to.

"To my mind," he says, "one of the most important principles in the local treatment of endometritis, and one which I have before insisted on, is the cleansing of the organ of its foul secretions, by frequent ablutions with a syringe. This is a plain surgical principle, that applies with as much force to the uterus as to any other hollow organ or diseased cavity. Mucus not only putrefies with great rapidity, but rapidly communicates the putrefactive process to blood. If putrid discharges be allowed to collect in the cavity of the uterus (as they are sure to do in flexions), it is difficult to imagine how recuperative action can take place; for not only do such discharges irritate the surface with which they are in contact, but doubtless more or less contaminate the blood. The insertion once in a week or ten days of a little nitrate of silver, chromic acid, Churchill's iodine, etc., cannot keep pace with the disease, while on the other hand experience proves that such remedies are not free from danger.

"This principle of ablution, with some detergent wash, I think will be conceded, and the only question is as to its feasibility and safety.

"It must be confessed that some degree of doubt, difficulty, and danger, should always attach to the use of uterine injections; that they should not be resorted to if we can gain our ends without them; and it is only the conviction that they cannot be dispensed with which has driven me to their employment. With proper caution, however, I think, the manipulation presents but little difficulty or risk. The uterus, as a rule, by gentle procedure, is soon educated to tolerate any medication we may think proper to adopt.

"First, expose the os uteri with Sims's speculum, mine, or any other that allows the os to be caught with a tenaculum and drawn a little down so as to straighten the uterine channel and tighten its lining membrane; then introduce a double canula, with a very large eye like one I have devised, into the body of the organ. It has been objected that this canula is too large, but I reply that no uterus should be freely injected, into which an instrument of this size cannot be introduced—a free regurgitant current is the only guarantee of safety. If necessary, the os uteri must first be dilated with tents, dilating instruments of some kind, or the knife. When once open, the canula keeps it open.

"As we cannot tell in each case, before testing it, what degree of sensibility the organ may possess, it is proper to proceed at the beginning with extreme caution. First, throw in through the canula, very gently, a little tepid water, or, what is better a weak solution of morphia. If the uterus proves to be sensitive, continue this simple wash for several days, until the sensibility is overcome. Tepid salt and water is also very soothing. After toleration is established and a free outlet is secured, the organ may then be freely washed out. We may next move a little more boldly and substitute a weak solution of iodine, carbolic acid, or other drug thought advisable, and increase the strength if the case does not progress favourably. Bearing in mind, however, the important fact that, if we attempt to wash the uterus out by copious injections with articles that *coagulate albumen*, the return-current is arrested both *in* the double canula and at the internal os *around* it. Solutions of common salt, of muriatic acid, alum, or iodine, do not coagulate albumen. Also *weak* solutions of carbolic acid, permanganate of potassa, pyroligneous acid, and other similar antiseptics, may be used very diluted, for, although some of them do not coagulate albumen, when dilute, they precipitate it in minute flocculi, that easily flow through any opening.

"Muriatic acid not only dissolves the thick tenacious mucus of the cervix, but the hard blood-coagula formed by persulphate of iron. This fact I think worthy of note.

"I will not say that I would proscribe the use *in toto* of solid nitrate of silver, or the concentrated solution of chromic acid. When other remedies fail me, I may be driven to their use, but not without fear and trembling, having fresh in my memory several cases in which deplorable results have followed the use of these remedies even in experienced hands."

Adipose Deposits in the Omentum and Abdominal Walls of Woman as a Source of Error in Diagnosis.—Dr. Geo. Pepper read a paper on this subject before the Philadelphia Obstetrical Society and related three illustrative cases.

All three patients had experienced considerable anxiety at the occurrence, and in two instances they firmly believed themselves pregnant, so that one of them even had engaged her accoucheur. The third fancied herself the victim of ovarian disease, and was beginning to fail in health, owing to the ever-present dread this thought inspired. In the first case, the excessive deposition of fat took place at the termination of the menstrual life, and after an exhausting uterine hemorrhage had been checked; in the second, after the cure of a profuse purulent uterine and vaginal discharge; whilst in the third, after a rather unusually abrupt cessation of the catamenia. In all, some accustomed discharge had ceased; and in all the deposition of fat took place principally in the abdominal walls, and probably in the omentum and various tissues of the abdomen and pelvis, without materially implicating other portions of the body. It appears improbable that, in any or each of these three cases, the enlargement of the abdomen could have been merely an accidental concomitant, for it so promptly followed the cessation of the habitual discharge, and continued to increase so regularly for a time, and yet came to a stand-still, or diminished, without any material aid from treatment.

"The diagnosis of these conditions," Dr. P. remarks, "should be made only after a careful consideration of the history, and a thorough physical examination of the patient; for only by such a combination can an intelligent opinion be formed. The fact of a recent suppression of the menses, or of some other habitual discharge, and, coincidently with this, the abdominal enlargement, must strongly direct suspicion, especially if from her age, or other circumstances it would appear improbable that the woman had conceived. As a rule, the more profuse the discharge has been, and the more sudden the cessation, other things being equal, the greater will be the deposit of adipose tissue, and the more profound the psychical impression on the patient."—*American Journ. Obstetrics*, May, 1870.

Ovarian Tumour; two Pregnancies during its Existence; Extirpation; Recovery, and third Pregnancy following.—Dr. A. B. Crosby records (*Michigan Univ. Med. Journ.*, March, 1870) an interesting case of this, the subject of which was 28 years of age, commenced to menstruate at 16, and was married at 25. Two months after marriage menstruation ceased.

Two months subsequently there was evident enlargement of the abdomen, which attracted little attention, because the patient was suffering from nausea. Six months after marriage there existed marked pain in the right iliac region. The abdomen was very prominent, and just below the umbilicus measured 42 inches. The usual signs of pregnancy existed, and it was supposed to be complicated with ascites. At full term she was delivered of a healthy boy. After confinement the abdomen only slightly diminished in size. Six months after the birth of her child paracentesis abdominis was performed, and thirty-five pounds of a slightly amber-coloured fluid removed. A small, solid tumour, the size of a hen's egg, could now be detected. A month later Prof. D. Crosby saw the patient and diagnosticated ovarian dropsy. One month after this (June, 1863) the patient again became pregnant. In January, 1864, she was tapped, and in March was delivered of a healthy girl.

On the 15th of June following she was again tapped, after which, a tumour about the size of a pint bowl could be felt in the left iliac region.

During the latter part of the nine months after the last tapping the tumour increased rapidly in size, and the patient desired its removal; which operation was performed March 22d, 1865. On September 1st, 1866, she was delivered of a living, healthy, male child, after a natural labour.

Spasmodic Action of the Abdominal Muscles simulating the Motions of the Fœtus in Utero.—A very curious case of this, which persisted for eight years, is related (*Boston Med. & Surg. Jl.*, May 5, 1870) by Dr. C. G. PUTNAM. The subject of it was the mother of three children, æt. 40, well proportioned and healthy.

When first seen by Dr. P. the enlargement of the abdomen appeared to be that of the full period of gestation. He noticed the frequent occurrence of abrupt vertical motions so strong, at times, as to jerk the whole trunk of the body, and cause her to "catch her breath." "Occasionally she swayed from side to side, as if compelled to yield to heavy lateral plunges within. She thought herself to be near the close of pregnancy, and a short time previously the late Dr. Gay, who requested me to take charge of the case, had passed a night in the house in expectation of the parturition. I made a cursory auscultation; but heard only the intestinal sounds, and without further investigation left her, with the presumption that she was on the eve of confinement.

"On my next visit a thorough, careful auscultation satisfied me that there was neither soufflet nor fœtal pulsation. I then ascertained that the texture and length of the neck of the uterus were not changed, and that the uterus was not materially, if at all, increased in size, so that if there was an ovum it was not, at least, intra-uterine. This was in February, 1850. Upon questioning, she then said that her last child was born in February, 1846, weaned in April, 1848. Menstruation immediately occurred and continued till July, 1848. In May, 1849, she was as large as at the full term. In December, 1849, seven months afterward, had a fall, flowed profusely, and supposed she had miscarried.

"From this point the record of the case went on as follows: May 31st, 1850.—Menstruation now present. Has suffered from "bearing down." Os and cervix uteri less firm than before. Externally a sulcus an inch and a half broad and about an inch deep, extends from three inches above to three inches below the umbilicus, which latter is thus in a deep groove or pit. Abdomen more prominent on the left than on the right; resonant on percussion. The breasts enlarged and tender; follicles of areolæ turgid and moist. July 28th, 1850.—The sensation of distension "cramming" in the abdomen so great as to cause faintness. No change in the cervix or fundus. Abdomen now more prominent on the right. September 7th, motion less, but the feeling of distension greater.

"March 25th, 1852.—For the last nine months has been gradually but very decidedly lessening in size. Menstruation has recurred. May, 1852.—I find the size increasing. The motion is violent, and on pressing the abdomen a solid body, apparently, rolls under the hands or is thrown from side to side, as if from an alternate action of the recti muscles. Jan. 1st, 1853.—No menstruation since July, 1852. Nov. 1853.—Constant pain in back and limbs—cannot lie in bed for more than an hour—often passes the night in her chair."

The case gave rise to various opinions, but the patient was persuaded that she was pregnant.

"On the last of October, 1857, she was suddenly attacked with painful vomiting and retching, great distress and jactitation. The liver could be felt below the edge of the ribs. Jaundice ensued, and without mitigation of symptoms, continued till her death, which took place in a fortnight after this acute attack.

"At the autopsy there was found—nothing: that is to say, nothing to account for the chronic affection. The abdominal parietes were somewhat more than two inches in thickness. There was enlargement and granulation of the liver, of recent origin. There was a degree of adipocerous transformation in the omentum, but it did not affect its size, and could not be associated with nor explain the phenomena. No unusual distension either of the large or small intestine. Uterus and appendages normal."

Erectile Cancroid of the Vagina.—Dr. William Goodell related to the Philadelphia Obstetrical Society the following case: "A robust lady, who had a dark and livid tumour projecting slightly from the vulva, from which she had never suffered any pain or inconvenience. Hemorrhage setting in, her physician called Dr. G. in consultation. He found a smooth vascular tumour, originating one inch below the meatus urethræ, as large as a horse-chestnut, giving out a profuse hemorrhage in minute jets, from an apparently ulcerated surface. As ice, liq. ferri subsulph., and other styptics had failed, a double ligature was thrown round the mass. The hemorrhage was thus arrested, and as, from its unusual site, it was considered a benign erectile tumour, a favourable prognosis was given. The growth, however, soon increased so rapidly as to fill up the vagina, and the lady died one month afterwards, exhausted by repeated hemorrhages. An autopsy revealed a large cauliflower excrescence, springing from the anterior wall of the vagina, which showed under the microscope the characteristic cells of such growths. The womb, bladder, and rectum exhibited no trace of the disease, and all the other internal organs were healthy. Dr. G. said that the early diagnosis of a cauliflower excrescence is extremely difficult, owing to its resemblance to an erectile growth; indeed, Virchow asserts that the excrescence is at first a simple papillary tumour, which ultimately passes into the cancroid state; and that therefore all vascular tumours of the vagina and uterus should be looked upon with suspicion."

Other members related their experience in regard to these cancroids, but had never seen one occupying the above site.—*Am. Journ. Obstetrics*, May, 1870.

THE WILLS OPHTHALMIC HOSPITAL,

Race Street, between Eighteenth and Nineteenth Sts., Philadelphia.

A Course of Lectures, Didactic and Clinical, on Ophthalmic Surgery, will be given at the Hospital during the months of November, December, and January.

The course will embrace all of the important branches of Ophthalmic Science, and will include the *Anatomy and Pathology of the Eye, the Physiology of Vision, the Refraction and Accommodation of the Eye, the Use of the Ophthalmoscope, and the Operative Surgery of the Eye.*

The large Clinics of the Hospital will afford abundant opportunities for the demonstration of the *General Diseases, Optical Defects, and Operative Surgery of the Eye.*

Each member of the class will be afforded instruction in the Use of the Ophthalmoscope, and in the practice of Operations on the Cadaver.

The Diagnosis of the Optical Defects which produce *Long, Short, or Weak Sight, Astigmatism, Strabismus, etc.*, and their Correction by the Scientific Use of Glasses, will be illustrated by apparatus and Clinical demonstration.

Fee for the Course . . . . Ten Dollars.

Operative and Clinical Surgery of the Eye.
R. J. Levis, M. D., N. W. cor. Arch and 13th Sts.
Anatomy, General Diseases of Eye, and Ophthalmoscopy.
Geo. C. Harlan, M. D., 1806 Chestnut St.
Physiology of Vision, Refraction, and Optical Defects of the Eye.
Wm. Thomson, M. D., 1607 Locust St.

UNIVERSITY OF MICHIGAN.

MEDICAL DEPARTMENT.

The Lectures of the Session of 1870–71 will commence as usual, on the first day of October, and continue for six months.

Fees.

To Students of Michigan, $20 for the first year, and $10 for each subsequent year.
To all others, $35 for the first year, and $10 for each subsequent year.

For further information, address ABM. SAGER, M. D., *Dean.*
Ann Arbor, Michigan.

PHILADELPHIA LYING-IN CHARITY.

SCHOOL OF OBSTETRICS AND DISEASES OF WOMEN.

The next winter course of instruction in Practical Obstetrics will begin in the third week in October, and continue, with three lectures each week, during the winter.

The teaching of this department of the institution, as it has been maintained regularly since its establishment by Dr. Warrington in 1827, embraces everything pertaining to the practical management of pregnant, parturient, and puerperal women required to fit practitioners of medicine for the care of obstetric patients, either in simple or complicated cases.

Demonstrative teaching is combined with practical experience at the bedside of the patient, the members of the class having placed under their care, in rotation, the large number of patients applying at the Charity for treatment during labour and lying-in at their own homes. Nurses and nourishment being furnished by the institution, the most favourable opportunity is afforded for the satisfactory study of these cases that can possibly be obtained among any class of charity patients.

In the lecture-room the pupils are thoroughly instructed in the details of the nice and careful management of ordinary cases of labour, of the diseased conditions of pregnancy, of the complications of labour involving manual and instrumental aid in parturition, and of the treatment of morbid states arising to the puerperal woman and her new-born child.

Especial attention is given to the study of diagnosis of the position of the fœtus, the members of the class being required to practise the touch upon models adapted for the purpose until a proficiency is attained in that very important point.

The application of the forceps is made the subject of thorough and careful study, and the members of the class are required to familiarize themselves with the use of the instruments upon the models.

The nurses of the institution are instructed in the management of lying-in cases in the presence of the medical class, so that gentlemen have an opportunity to become acquainted with the duties of monthly nurses, which to country practitioners is a matter of incalculable value, not merely in enabling them to suggest as to the care of their own patients, but also to give instruction to women who desire to engage in such occupation in neighbourhoods where skilful and educated nurses cannot be obtained.

The object of the institution is to afford every means to the young physician to make an expert obstetrician, being able, from theoretical as well as experimental knowledge, to take charge of any case likely to be presented to him, with confidence and skill.

The diploma of the institution is given to graduates of regular medical schools, testifying as to the management of their cases as pupil-physicians to the satisfaction of the Board of Managers.

Fee for the course	$15 00
Diploma (if requested)	5 00

Apply at the institution, No. 126 North Eleventh Street, or to

ALBERT H. SMITH, M. D., *Lecturer*,
No. 113 South Broad St., Philadelphia.

The clinic for diseases of women, under the care of the assistant physicians of the Charity, affords at all seasons of the year unequalled facilities for the study of uterine pathology and treatment in the large number of patients constantly under the care of the Charity, with every variety of disease incident to the reproductive organs of women.

ASSISTANT PHYSICIANS.

GEORGE PEPPER, M. D.,
CHARLES H. THOMAS, M. D.,
JAMES F. WILSON, M. D.,
WM. H. H. GITHENS, M. D.

MEDICAL INSTITUTE,

920 Chestnut Street, Philadelphia.

ROBERT BOLLING, M. D.
JAMES H. HUTCHINSON, M. D.
H. LENOX HODGE, M. D.

OFFICE STUDENTS are received, through their preceptors, or upon their own application, for a part or the whole of a three years' course of study.

They are admitted to the Winter Examinations, and to the Summer School of Medicine, and thus have the benefit of a systematic course of examinations during both the winter and summer.

They are instructed *practically* in Anatomy, Bandaging, Dressing of Fractures, Operative Surgery, Examination of Urine, Obstetrics, and Percussion and Auscultation.

CLINICAL INSTRUCTION is provided for them at the
Pennsylvania Hospital,
Philadelphia Hospital,
Children's Hospital,
Wills Hospital for the Eye.

Bed-side Instruction is given them during February, March, and April, in the wards of the Pennsylvania Hospital by Dr. James H. Hutchinson. They are also enabled to attend women during confinement.

Fee for One Year—One Hundred Dollars.

WINTER EXAMINATIONS.—The Course will begin with the Lectures at the University of Pennsylvania, and will continue until the close of the session.

Fee Thirty Dollars.

SUMMER SCHOOL OF MEDICINE.—The Seventh Session will begin on March 1, 1871, and students may enjoy its privileges without cessation until October.

Examinations, Lectures, and Clinical Instruction will be given during April, May, June, and September.

Fee Fifty Dollars.

CANDIDATES FOR ADMISSION TO THE ARMY OR NAVY, and those desiring promotion to a higher grade, may obtain the use of the Class Rooms, and be furnished with private instruction.

CLASS ROOMS contain a Cabinet of Materia Medica, Bones, Anatomical Preparations, Bandages, Manikins, Illustrations, Text-Books, Microscope, Chemical Reagents, etc.

DISSECTION, SURGICAL OPERATIONS, BANDAGING, AND DRESSING OF FRACTURES may be practised to the best advantage.

During the year, Lectures will be delivered on

REGIONAL ANATOMY.
PERCUSSION AND AUSCULTATION.
URINARY DEPOSITS AND TESTS.
DISEASES OF THE EYE.

Apply to
H. LENOX HODGE, M. D.,
N. W. cor. Ninth and Walnut Streets, Phila.

BELLEVUE HOSPITAL MEDICAL COLLEGE—CITY OF NEW YORK.

SESSION OF 1870-71.

The Collegiate Year in this Institution embraces a Preliminary Autumnal Term, the Regular Winter Session, and a Summer Session.

The Preliminary Autumnal Term for 1870-71, will commence on Wednesday, September 14, 1870, and continue until the opening of the Regular Session. During this term, instruction, consisting of didactic lectures on special subjects and daily clinical lectures, will be given, as heretofore, exclusively by members of the Faculty. Students designing to attend the Regular Session are strongly recommended to attend during the Preliminary term, but attendance during the latter is not required. During the Preliminary Term Clinic and Didactic Lectures will be given in the same number and order as in the Regular Session.

The Regular Session will commence on Wednesday, October 12, and end about the 1st of March, 1871.

FACULTY.

Isaac E. Taylor, M. D., Emeritus Professor of Obstetrics and Diseases of Women and Children, and President of the College.

James R. Wood, M. D., LL.D., Emeritus Professor of Surgery.

Fordyce Barker, M. D., Professor of Clinical Midwifery and Diseases of Women.

Frank H. Hamilton, M. D., LL. D., Professor of Practice of Surgery with Operations and Clinical Surgery.

Lewis A. Sayre, M. D., Professor of Orthopedic Surgery and Clinical Surgery.

Alexander B. Mott, M. D., Professor of Surgical Anatomy with Operations and Clinical Surgery.

W. H. Van Buren, M. D., Professor of Principles of Surgery with Diseases of the Genito-Urinary System and Clinical Surgery.

Benjamin W. McCready, M. D., Professor of Materia Medica and Therapeutics and Clinical Medicine.

George T. Elliot, M. D., Professor of Obstetrics and Diseases of Women and Children, and Clinical Midwifery.

Stephen Smith, M. D., Professor of Descriptive and Comparative Anatomy and Clinical Surgery.

Austin Flint, M. D., Professor of Principles and Practice of Medicine and Clinical Medicine.

R. Ogden Doremus, M. D., Professor of Chemistry and Toxicology.

William A. Hammond, M. D., Professor of Diseases of the Mind and Nervous System and Clinical Medicine.

Austin Flint, Jr., M. D., Professor of Physiology and Microscopy, and Secretary of the Faculty.

SPECIAL LECTURES IN THE REGULAR TERM.

Ophthalmology	By Professor Henry D. Noyes, M. D.
Diseases of the Skin . . .	" Professor Foster Swift, M. D.

A distinctive feature of the method of instruction in this College, is the union of clinical and didactic teaching. All the lectures are given within the hospital grounds. During the Regular Winter Session, in addition to four didactic lectures on every week day, except Saturday, two or three hours are daily allotted to clinical instruction. The union of clinical and didactic teaching will also be carried out in the Summer Session; nearly all of the teachers in this Faculty being physicians and surgeons in the Bellevue Hospital and the great Charity Hospital on Blackwell's Island.

This Session will consist of two Recitation Terms; the first from March 14th to July 1st, and the second from September 1st to the opening of the Regular Session. During this Session there will be daily recitations in all the departments held by members of the regular Faculty and their assistants. Regular Clinics will also be held daily.

Fees for the Regular Session.

Fees for Tickets to all the Lectures during the Preliminary and Regular Term, including Clinical Lectures	$140 00
Matriculation Fee	5 00
Demonstrator's Ticket (including material for dissection)	10 00
Graduation Fee	30 00

Fees for the Summer Session.

Matriculation (Ticket good for the following Winter)	$ 5 00
Recitations and Clinics	35 00
Chemical Laboratory (including material)	25 00
Dissecting (Ticket good for the following Winter)	10 00

For the Annual Circular and Catalogue, giving regulations for graduation and other information, address the Secretary of the College, Prof. Austin Flint, Jr., Bellevue Hospital Medical College.

UNIVERSITY OF NEW YORK.

MEDICAL DEPARTMENT.

426 East Twenty-sixth St., opposite Bellevue Hospital, New York City.

THIRTIETH SESSION, 1870-71.

FACULTY OF MEDICINE.

Rev. Isaac Ferris, D.D., LL.D., Chancellor of the University.

Martyn Paine, M.D., LL.D., Emeritus Professor of Materia Medica and Therapeutics.

John W. Draper, M.D., LL.D., Emeritus Professor of Chemistry and Physiology, President of the Faculty.

Alfred C. Post, M.D., Professor of the Principles and Operations of Surgery, with Military Surgery and Hygiene.

Charles A. Budd, M.D., Professor of Obstetrics, with Diseases of Women and Children, and Clinical Midwifery.

John C. Draper, M.D., Professor of Chemistry.

Alfred L. Loomis, M.D., Professor of Institutes and Practice of Medicine.

William Darling, A.M., M.D., F.R.C.S., Professor of Descriptive and Surgical Anatomy.

Henry Draper, M.D., Professor of Physiology, Registrar of the Faculty.

William H. Thomson, M.D., Professor of Materia Medica and Therapeutics.

J. W. S. Gouley, M.D., Professor of Clinical Surgery and Genito-Urinary Diseases.

The collegiate year is divided into two Sessions—a regular Winter Session, and a Spring, Summer, and Autumn Session. The latter is auxiliary to the former, and the design of the Faculty is to furnish instruction to medical students throughout the year. *Attendance on the regular Winter Session is all that is demanded of the candidates for graduation.* Those who attend the other session receive a Certificate of Honor, as having pursued voluntarily a fuller course than usual.

The Spring and Summer Session is principally of a practical and clinical character, and affords particular facilities to students who have already taken one course in schools where such practical advantages exist to a less extent. The course consists also partly of lectures and examinations on the subjects necessary for graduating in medicine, conducted by the Professors of the regular Faculty and their assistants. These examinations will be addressed to both first and second course students.

For the purpose of making the visits to the wards of the hospitals as available as possible, the class is divided into sections. One division at a time is instructed in Practical Diagnosis, Prescription, and Treatment of Patients. The course begins in the middle of March, and continues till the beginning of June, when the Summer Commencement is held. During the summer the College Clinics are kept open.

The Autumn or Preliminary Session commences on the first of September, and continues till the opening of the regular session. It is conducted on the same plan as the Spring and Summer Session.

The regular Winter Session occupies four and a half months—commencing on the third of October, and continuing till the middle of February. The system of instruction embraces a thorough Didactic and Clinical Course, the lectures being illustrated by two clinics each day. One of these daily clinics will be held either in Bellevue or the Charity Hospital. The location of the College building affords the greatest facilities for Hospital Clinics. It is opposite the gate of Bellevue Hospital, on Twenty-sixth Street, and in close proximity to the ferry to Charity Hospital on Blackwell's Island, while the Department of Out-door Medical Charity, and the Hospital Post-mortem Rooms, are across the street. The students of the University Medical College will be furnished with admission tickets to these establishments free of charge. The Professors of the practical chairs are connected with one or both of these hospitals.

Besides the Hospital clinics, there are eight clinics each week in the College building.

The Faculty desire to call attention particularly to the opportunities for dissection. *Subjects are abundant and are furnished free of charge*, and the Professor of Anatomy spends several hours each day in demonstration in the dissecting-room.

Fees for the Winter Course.

Full Course of Lectures	$140 00
Matriculation	5 00
Demonstrator's Fee, including material for dissection .	10 00
Graduation Fee	30 00

Fees for the Spring, Summer, and Autumn Course.

Students who have attended the Winter Course will be admitted free of charge. Those who have not attended the Winter Course will be required to pay the Matriculation Fee and $30; and should they decide to become pupils for the winter, the $35 thus paid will be deducted from the price of the winter tickets.

For the purpose of assisting meritorious individuals, the Faculty will receive a few *beneficiaries*, each of whom will be required to pay $43 per annum and the Matriculation Fee.

For further particulars and circulars, address the Registrar,

Prof. HENRY DRAPER, M.D.,
University Medical College, 426 East 26th St., New York City.

JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

The next Annual Session will commence on the 2d Monday in October, 1870. Preliminary Lectures will begin on the first Monday in September.

FACULTY.

Joseph Pancoast, M. D.,	Professor of Anatomy.
Samuel D. Gross, M. D.,	Professor of Surgery.
S. Henry Dickson, M. D.,	Professor of Practice of Medicine
Ellerslie Wallace, M. D.,	Professor of Obstetrics.
B. Howard Rand, M. D.,	Professor of Chemistry.
John B. Biddle, M. D.,	Professor of Materia Medica.
J. Aitken Meigs, M. D.,	Professor of Institutes of Medicine.

Fees for full course (in common with all the regular colleges of Philadelphia and New York), $140; Matriculation, $5; Graduation, $30.

Board from $5 to $7 per week. Clinical Instruction will be given daily at the College and twice a week at the Philadelphia and Pennsylvania Hospitals. Ample material for dissection is provided under the new anatomy act.

For full particulars see the annual announcement, which will be sent on application to

B. HOWARD RAND, M. D.,
Dean of the Faculty.

PHILADELPHIA SCHOOL OF ANATOMY,

Chant Street, Tenth Street above Chestnut, opposite the Mercantile Library.

The Summer Course of Lectures at the Philadelphia School of Anatomy will reopen on September 6, 1870, with Lectures on the Brain and Nervous System on Tuesdays, Thursdays, and Fridays, at 2½ o'clock P. M. The Dissecting Room will be constantly open.

The Winter Course will begin on Tuesday, October 10, 1870, and will continue till the end of February, 1871.

A Systematic Course of Lectures on Descriptive and Surgical Anatomy will be delivered on Mondays, Wednesdays, Thursdays, and Fridays, at 7 o'clock P. M., illustrated by Dissections, Models, Drawings, &c. The Microscopic Anatomy of the various tissues will be shown by the Class Microscope.

Dissection will be carried on under the direct and personal supervision of the Assistant Demonstrators of Anatomy, with an abundant supply of material.

Fee for the Course $10.

In connection with the institution there will be delivered also during the Winter the following additional courses:—

II. Operative Surgery, by Dr. W. W. Keen, . . . $10.

Special facilities will be afforded students, candidates for the Army or the Navy, or others who may desire to take a Course on Operative Surgery.

III. Bandaging and Fractures, by Dr. O. H. Allis, . . $10.

For further information, apply at the Rooms, or to

WILLIAM W. KEEN, M. D., 1619 Chestnut Street. (3½—5 p. m.)

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA,

CHARLESTON, SOUTH CAROLINA.

The Forty-Second Course of Lectures in this Institution will commence on Monday the 7th of November, 1870, and be continued until the 1st Saturday in March, 1871.

FACULTY.

J. E. Holbrook, M. D., Emeritus Professor of Anatomy.
E. Geddings, M. D., Emeritus Professor of the Institutes and Practice of Medicine, and Professor of Clinical Medicine.
R. A. Kinloch, M. D., Professor of Surgery.
F. M. Robertson, M. D., Professor of Obstetrics and the Diseases of Women and Children.
J. P. Chazal, M. D., Prof. of General Pathology, Pathological Anatomy and Hygiene.
Middleton Michel, M. D., Professor of Physiology.
George E. Trescot, M. D., Professor of Materia Medica and Therapeutics.
C. U. Shepard, Jr., M. D., Professor of Chemistry.
J. F. M. Geddings, M. D., Professor of the Institutes and Practice of Medicine.
F. L. Parker, M. D., Professor of Anatomy.
W. H. Bailey, M. D., Demonstrator of Anatomy.

In addition to the Lectures of the Professor of Clinical Medicine, Clinical Lectures will also be delivered at the City Hospital, by the Professors of Surgery and Obstetrics, and Diseases of Women and Children.

Expenses of the School.—Matriculation Fee (paid once), $5 00; Entire Course of Lectures, including Clinics, $130 00; Demonstrator's Ticket, $10 00; Graduation Fee, $30 00.

The Fees, in all cases, to be paid at the commencement of the Course.

Good board can be obtained in the city of Charleston at as low a rate as in any city in the United States.

The Winter climate of Charleston should be an inducement to bring students from the North and East, who desire to avoid the rigors of a northern winter in the prosecution of their Medical studies.

For further information address the Dean or either of the Professors.

F. M. ROBERTSON, M. D., *Dean of the Faculty.*

ALBANY MEDICAL COLLEGE.

TERM, 1870.

FACULTY.

James McNaughton, M. D., President; Theory and Practice of Medicine.
James H. Armsby, M. D., Principles and Practice of Surgery and Clinical Surgery.
Edmund R. Peaslee, M. D., LL. D., Diseases of Women.
William P. Seymour, M. D., Obstetrics and Diseases of Children.
Meredith Clymer, M. D., Diseases of the Nervous System and of the Mind.
John V. Lansing, M. D., Physiology and Clinical Medicine.
Albert Van Derveer, M. D., General and Special Anatomy.
Henry R. Haskins, M. D., Surgical and Descriptive Anatomy.
George T. Stevens, M. D., Ophthalmic and Orthopedic Surgery.
John M. Bigelow, M. D., Materia Medica.
Maurice Perkins, A. M., Chemistry and Toxicology.
Hon. Ira Harris, LL. D., President of the Board of Trustees; Medical Jurisprudence.

The next Term commences on the first Tuesday in September, 1870, and continues sixteen weeks. For Circulars, apply to

J. V. LANSING, M. D., *Registrar.*

RUSH MEDICAL COLLEGE.

FACULTY.

J. V. Z. Blaney, A. M., M. D., Prof. of Chemistry and Pharmacy.
Jos. W. Freer, M. D., Prof. of Physiology and Microscopic Anatomy.
J. Adams Allen, M. D., LL. D., Prof. of Principles and Practice of Medicine.
E. Ingals, M. D., Prof. of Materia Medica and Medical Jurisprudence.
DeLaskie Miller, M. D., Prof. of Obstetrics and Diseases of Women and Children.
R. L. Rea, M. D., Prof. of Anatomy.
Moses Gunn, A. M., M. D., Prof. of Principles and Practice of Surgery and Clinical Surgery.
Edwin Powell, M. D., Professor of Military Surgery and Surgical Anatomy.
Joseph P. Ross, M. D., Prof. of Clinical Medicine and Diseases of the Chest.
Edward L. Holmes, M. D., Prof. of Diseases of the Eye and Ear.

Charles T. Parkes, M. D., Demonstrator.
H. F. Cheesbrough, M. D., Clinical Assistant and Prosector of Surgery.
Francis L. Wadsworth, M. D., Assistant to Professor of Physiology.

The Twenty-Eighth Annual Course of Lectures will commence on Wednesday, September 28th, 1870, and continue eighteen weeks.

FEES.—	Lectures	$55
	Matriculation	5
	Dissection	5
	Hospital	5
	Graduation	25

Daily Clinics at the Dispensary (except Sundays). Surgical Clinics on Saturday afternoons, throughout the year, at which patients from the *country* and *city* are treated gratuitously.

Hospital Clinics are abundant and varied.

For Annual Announcement, or any information with reference to the College, address the Secretary.

Dr. DeLASKIE MILLER, 518 Wabash Av., Chicago.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY,

THE FIFTEENTH ANNUAL SESSION, 1870–71.

FACULTY.

T. L. Buckingham, D. D. S., Prof. of Chemistry.
E. Wildman, M. D., D. D. S., Prof. of Mechanical Dentistry and Metallurgy.
G. T. Barker, D. D. S., Prof. of Dental Pathology and Therapeutics.
James Truman, D. D. S., Prof. of Dental Histology and Operative Dentistry.
James Tyson, M. D., Prof. of Physiology and Microscopic Anatomy.
J. Ewing Mears, M. D., Prof. of Anatomy and Surgery.
J. M. Barstow, D. D. S., Demonstrator of Mechanical Dentistry.
Elihu R. Pettit, D. D. S., Demonstrator of Operative Dentistry.

The Regular Course will commence on the first Monday of November, and continue until the first of March ensuing. During September the Laboratory will be open, and Preliminary Lectures will be delivered during October. A Clinical Lecture delivered every Saturday by one of the Professors. The most ample facilities are furnished for a thorough course of practical instruction.

FEES.—	Tickets for the Course, Demonstrators' Tickets included,	$100
	Matriculation Fee	5
	Diploma Fee	30

For further information address

T. L. BUCKINGHAM, Dean,
1206 *Vine Street, Philadelphia.*

THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER 1870.

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TO READERS AND CORRESPONDENTS.

All articles intended for the *Original Department* of this Journal must be contributed to it *exclusively*. The insertion elsewhere of *abstracts* of papers *prior* to the publication of the entire paper in this Journal is a violation of this rule. As original articles are *accepted only on this condition*, we consider those who favour us with contributions to be bound in honour to conform to it.

Contributors who wish their articles to appear in the next number, are requested to forward them before the 1st of November.

Compensation is allowed for original articles and reviews, except when illustrations or extra copies are desired. A *limited* number of extra copies will be furnished to authors, *provided the request for them be made at the time the communication is sent* to the Editors.

Communications postponed for want of room shall receive early attention.

The following works have been received:—

The Unity of Medicine; its Corruptions and Divisions by Law established in England and Wales, their Causes, Effects, and Remedy. By FREDERICK DAVIES, M. D., F. R. C. S., late Surgeon to the St. Pancras and Northern Dispensary. With a coloured chart. Second edition, revised and extended to Ireland and Scotland. London: John Churchill & Sons, 1870.

On Cholera and Choleraic Diarrhœa; their Nature, Cause, and Treatment. Two lectures, delivered at the Church Missionary College, Islington. By GEORGE JOHNSON, M. D., Lond., F. R. C. P., Prof. of Med. in King's Coll., Lond., etc. London: John Churchill & Sons, 1870.

Hypertrophy of the Muscular Walls of the Minute Arteries in Cases of Chronic Bright's Disease. By GEORGE JOHNSON, M. D., F. R. C. P., etc.

Voluntary Patients in Asylums. By STANLEY HAYNES, M. D., Edin., Med. Sup't of Laverstock House Asylum, near Salisbury. Lewes: Geo. P. Bacon.

Medical Diagnosis, with Special Reference to Practical Medicine. A Guide to the Knowledge and Discrimination of Diseases. By J. M. DA COSTA, M. D., Lecturer on Clinical Medicine and Physician to the Pennsylvania Hospital, Fellow of the Coll. of Phys. of Phila., etc. Illustrated with engravings on wood. Third edition, revised. Philadelphia: J. B. Lippincott & Co., 1870.

The Practice of Medicine. By THOMAS HAWKES TANNER, M. D., F. L. S., M. R. C. P., Fell. of Royal Soc. of Literature, etc. etc. Fifth American from the sixth London edition, enlarged and thoroughly revised. Philadelphia: Lindsay & Blakiston, 1870.

A Guide to the Examination of the Urine for the Practitioner and Student. By J. WICKHAM LEGG, M. D., M. R. C. P., Phys. to the St. George, Hanover Square, Dispensary. Second edition. Philadelphia: Lindsay & Blakiston, 1870.

A Treatise on the Theory and Practice of Obstetrics. By WM. H. BYFORD, A. M., M. D., Prof. of Obstetrics and Diseases of Women and Children in the Chicago Medical College, etc. etc. New York: Wm. Wood & Co., 1870.

The Physical Exploration of the Rectum. With an Appendix on the Ligation of Hæmorrhoidal Tumours. By WILLIAM BODENHAMER, A. M., M. D. Illustrated by numerous drawings. New York: William Wood & Co., 1870.

Oxygen Gas as a Remedy in Diseases. Second edition. By ANDREW H. SMITH,

M. D., Member of Acad. of Nat. Sciences, Phila, etc. New York: D. Appleton & Co., 1870.

A Cyclopædia of Quantitative Chemical Analysis. By Frank H. Storer, A. M., Prof. of General and Analytical Chemistry in the Massachusetts Institute of Technology. Part I. Boston: Sever, Francis, & Co., 1870.

Naval Hygiene. By Joseph Wilson, Surg. U. S. N. With an Appendix; Moving Wounded Men on Shipboard, by Albert C. Gorges, Surg. U. S. N. Reported to the Bureau of Medicine and Surgery. Published by order of the Navy Department, Washington, 1870.

The Medical Herbarium. A Collection of Dried Samples of Medicinal Plants. By T. F. Allen, New York.

Exophthalmic Goitre with Insanity. By J. B. Andrews, M. D.

On the Origin of Diabetes, with some New Experiments regarding the Glycogenic Function of the Liver. By W. T. Lusk, M. D., Prof. of Physiology in the Long Island Med. Coll. New York: D. Appleton & Co., 1870.

A Descriptive Catalogue of the Warren Anatomical Museum, Harvard University. By J. B. S. Jackson, M. D., Curator of the Museum; and Shattuck, Professor of Morbid Anatomy. Boston: A. Williams & Co., 1870.

The Raising and Education of Abandoned Children in Europe, with Statistics and General Remarks on that Subject. By Abraham Jacobi, M. D., Member of the Medical Board of the Infants' Hospital, Randall's Island, and of the Nursery and Child's Hospital, N. Y., Prof. of Diseases of Children in the Coll. of Phys. and Surg., N. Y., etc. New York, 1870.

A Medico-Legal Study of the Case of Daniel McFarland. By William A. Hammond, M. D., Prof. of Diseases of the Mind and Nervous System and of Clin. Med. in the Bellevue Hosp. Med. Coll. New York: D. Appleton & Co., 1870.

The Yellow Fever, Sanitary Condition, and Vital Statistics of New Orleans during its Military Occupation, 1862–65. By Sanford E. Chaillé, M. D., Prof. of Phys. and Pract. Anat. in the Med. Dept. of the Univ. of Louisiana. Article No. II. New Orleans, 1870.

The Bromides; their Physiological Effects and Therapeutic Uses. By Z. C. McElroy, M. D. New York: D. Appleton & Co., 1870.

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Medical Opinion of Charles A. Lee, M. D., in the matter of Carlton Gates, deceased. New York, 1870.

The Alleged Malpractice Suit of Walsh *v.* Sayre. New York: Geo. H. Shaw & Co., 1870.

In Re William Winter (The Value of Expert Testimony), by John Ordronaux, Prof. of Medical Jurisprudence in the Law School of Columbia College, N. Y.

Transactions of the Indiana State Medical Society, 1870. Indianapolis, 1870.

Constitution and By-Laws of the Medical Society of the District of Columbia, with the Act of Incorporation and List of Members. Washington, 1870.

An Address delivered before the South Carolina Medical Association at its Annual Session held in Columbia, S. C., March 9, 1870. By A. N. Talley, M. D., Prof. of Practice of Med. and Obstetrics in the Univ. of South Carolina. Columbia, S. C., 1870.

Man's Power over Nature, and Medicines by which he Aids and Controls the Laws of Life. An address delivered before the Indiana State Medical Society. By George Sutton, M. D., of Aurora, Ind. Indianapolis, 1870.

Forty-fifth and Forty-sixth Annual Reports of the Officers of the Retreat for the Insane, at Hartford, Conn., April, 1870.

First Annual Report of the State Board of Health of Massachusetts, January, 1870. Boston, 1870.

Fourth Annual Report of the Metropolitan Board of Health of the State of New York, 1869. New York: D. Appleton & Co., 1870.

The following Journals have been received in exchange:—

Virteljahrschrift für die Praktische Heilkunde. 1870. Zweiter Band.

Archiv der Heilkunde. 1870. Viertes und fünftes Heft.

Deutsches Archiv für Klinische Medicin. Band 7. Drittes und Viertes Heft.

Centralblatt für die Medicinischen Wissenschaften. 1870. Nos. 26 to 38, except No. 27.

Archiv für Dermatologie und Syphilis. 1870. Drittes Heft.

Giornale Italiano delle Malattie Veneree e delle Malattie della Pelle. 1870. Maggio, Guigno, Luglio.

L'Imparziale. 1870. July, August, September.

Archives Générales de Médecine. Juillet, Août, Septembre, 1870.

Archives de Physiologie Normale et Pathologique. Juillet, Août, 1870.

Annales de Dermatologie et de Syphiligraphie. No. 5, 1870.

Journal de Médecine Mentale. Avril, Mai, Juin, Juillet, Août, 1870.

Revue de Thérapeutique Médico-Chirurgicale. 1870. Nos. 12 to 17.

L'Union Médicale. 1870. Nos. 70 to 107, except Nos. 97 and 98.

La Santé Publique. 1870. Nos. 74 to 85, except No. 82.

Le Mouvement Médical. 1870. Nos. 25 to 36, except No. 30.

Revue de Cours Scientifiques de la France et de l'Etranger. 1870. Nos. 29 to 41.

The Half-Yearly Abstract of the Medical Sciences. January—June, 1870.

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The British and Foreign Medico-Chirurgical Review. July, 1870.

The Medical Times and Gazette. July, August, September, 1870.

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The Glasgow Medical Journal. August, 1870.

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The New York Medical Journal. July, August, September, 1870.

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The Buffalo Medical and Surgical Journal. June, July, August, 1870.

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The Medical and Surgical Reporter. July, August, September, 1870.
Half-Yearly Compendium of Medical Science. July, 1870.
The Cincinnati Lancet and Observer. July, August, September, 1870.
The Cincinnati Medical Repertory. July, August, September, 1870.
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The Chicago Medical Examiner. July, 1870.
The Indiana Journal of Medicine. July, August, September, 1870.
The Saint Louis Medical and Surgical Journal. July, September, 1870.
The Detroit Review of Medicine and Pharmacy. July, August, 1870.
The Medical Archives. June, 1870.
The Leavenworth Medical Herald. July, August, September, 1870.
The Northwestern Medical and Surgical Journal. June, July, August, 1870.
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The Journal of the Gynæcological Society of Boston. July, August, September, 1870.
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The American Journal of Pharmacy. July, September, 1870.
The Druggist's Circular. July, August, September, 1870.
The Journal of Materia Medica. July, August, 1870.
The Pharmacist. July, August, September, 1870.
The Dental Cosmos. July, August, September, 1870.
The American Journal of Dental Sciences. July, August, 1870.
The American Journal of Science and Arts. July, September, 1870.
The American Naturalist. July, August, September, 1870.

Communications intended for publication, and Books for Review, should be sent *free of expense*, directed to Isaac Hays, M. D., Editor of the American Journal of the Medical Sciences, care of Mr. Henry C. Lea, Philadelphia. Parcels directed as above, and (carriage paid) under cover, to Mr. Charles J. Skeet, Bookseller, No. 10 King William Street, Charing Cross, *London;* or M. Hector Bossange, Lib. quai Voltaire, No. 11, *Paris*, will reach us safely and without delay.

All remittances of money and letters on the *business* of the *Journal* should be addressed *exclusively* to the publisher, Mr. H. C. Lea, No. 706 Sansom Street.

The advertisement sheet belongs to the business department of the *Journal*, and all communications for it must be made to the publisher.

ERRATA.

Page 280, line 14 from bottom, *for* "S. Hertz" *read* "T. Wertz."
" " " 2 " " *for* "Darby" *read* "Daily."

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XX. Fourth Report of the Metropolitan Board of Health of the State of New York, 1869. 8vo. pp. 594. New York: D. Appleton & Co., 1870. 475

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XXII. On Aphasia, or Loss of Speech, in Cerebral Disease. By Frederic Bateman, M.D., M.R.C.P., Physician to the Norfolk and Norwich Hospital. 12mo. pp. 124. Lewes: Geo. P. Bacon, 1869. 496

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XXIII. Lectures on some Subjects connected with Practical Pathology and Surgery. By Henry Lee, F.R.C.S., etc. In two volumes. Third edition. 8vo. pp. xviii., 309, and xx., 386. London: John Churchill & Sons, 1870. 498

XXIV. Lectures on Surgical Pathology delivered at the Royal College of Surgeons of England. By James Paget, F. R. S., D. C. L. Oxon., Sergeant-Surgeon Extraordinary to her Majesty the Queen, etc. Third edition, revised and edited by William Turner, M. B. Lond., Prof. of Anat. in the Univ. of Edin. 8vo. pp. 850. London: Longmans, Green & Co., 1870. 500

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XXVIII. Medical Diagnosis, with Special Reference to Practical Medicine. A Guide to the Knowledge and Discrimination of Disease. By J. M. Da Costa, M. D., Lecturer on Clin. Med., and Phys. to Penn. Hosp., etc. Illustrated with engravings on wood. Third edition, revised. 8vo. pp. 844. Philadelphia: J. B. Lippincott & Co., 1870. 506

XXIX. Transactions of American State Medical Societies.
  1. Transactions of the South Carolina Medical Association. Annual Session, 1870. (Second Meeting since Reorganization.) 8vo. pp. 56.
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  3. On Amputation through the Knee-joint. By William MacCormac, A. M., M. D., M. R. I. A., President of the Ulster Med. Soc., Surg. to Belfast Gen. Hosp., etc. 8vo. pp. 22. (With a photograph.) . 510

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XXXIII. New Facts and Remarks concerning Idiocy: By Edward Seguin, M. D. 8vo. pp. 47. New York: Wm. Wood & Co., 1870. 518

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XXXV. The Normal Temperature in Children. By James Finlayson, M. B., late House Surgeon to the Clinical Hosp. and Dispensary for Children, Manchester. 8vo. pp. 19. Glasgow: Dunn & Wright, 1869.
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THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER 1870.

Art. I.—*Statistical Account of the Cases of Amputation performed at the Pennsylvania Hospital from January* 1, 1860, *to January* 1, 1870; *with the Mortality following this Operation in the Hospital during a period of forty years.* By Thomas George Morton, M. D., one of the Attending Surgeons, Surgeon to the Wills Ophthalmic Hospital, etc.

Statistical tables showing the mortality following major amputations at the Pennsylvania Hospital during a period of twenty years (from 1830 to 1850) have been published by Dr. George W. Norris, in the 22d, 26th, and 28th volumes of this Journal.

In the Pennsylvania Hospital Reports for 1868, another table by the same author will be found containing these statistics for another decade, viz., to 1860; while the following tables have been drawn up in a manner similar to those of Dr. Norris, and represent, as accurately as could be obtained, the last ten years' operations, viz., to 1870.

A large increase will be noticed in the number of primary amputations performed during the last ten years; this is owing in a measure to the vast number of accidents constantly occurring in the mining districts, and which can now be brought immediately to the hospital; while from our street railroads, and the general manufacturing establishments of the city, a large number of the most serious form of injuries are almost daily admitted.

No.	Admission.	Age	Name.	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1860							
1	Jan. 14	48	Bernard Kelly	Compound comminuted fracture of leg	Thigh	Immediate	Died	Feb. 6, 1860
2	March 9	36	John O'Brien	Mortification of foot following fracture	Leg	......	Cured	Oct. 6, 1860
3	“ 23	35	Henry Stoll	Ununited fracture of femur	Thigh	......	“	March 21, 1861
4	“ 26	18	Patrick Morton	Abscess of axilla	Shoulder-joint	......	“	Dec. 11, 1860
5	“ 28	26	Thomas Miller	Forearm torn off	Forearm	Immediate	“	May, 14, 1860
6	April 17	13	Fergus Bottomley	Lacerated wound of hand	Hand at wrist-joint	“	“	June 14, 1860
7	“ 18	27	Charles H. Shinn	Foot torn off at ankle	Leg	“	“	June 14, 1860
8	“ 27	23	Adam Ferguson	Caries of ankle	Leg	......	“	June 7, 1860
9	May 16	50	John Reedy	Comp. comminuted fracture of leg and foot	Knee-joint	......	Died	June 9, 1860
10	“ 23	19	Terrence Beirne	Lacerated wound of foot	Foot (Pirogoff)	Immediate	Cured	Aug. 23, 1860
11	“ 23	19	“ “	Ulcer of stump	Leg	......	“	Aug. 23, 1860
12	“ 31	38	Thomas Leonard	Leg torn off	Leg	Immediate	“	July 20, 1860
13	“ 31	60	Hannah McKinney	Caries of wrist and hand	Forearm	......	“	July 12, 1860
14	June 6	38	Isaiah M. Heston[1]	Fungus hæmatodes of thigh	Hip-joint	......	“	July 24, 1860
15	“ 14	22	John Montgomery	Compound comminuted fracture of hand	Hand at wrist-joint	Immediate	“	July 19, 1860
16	July 3	48	John Casey	“ “ “ of leg	Leg	“	Died	Aug. 6, 1860
17	“ 4	19	Charles Dorshell	Gunshot fracture of wrist	Forearm	“	Cured	Aug. 31, 1860
18	“ 20	40	Daniel Larkey	Fracture of tibia, rupture of ligaments of the knee, followed by caries of ankle	Leg	......	“	June 7, 1861
19	Sept. 29	9	Margt. McFarland	Gunshot wound of forearm	Forearm	Immediate	“	Nov. 26, 1860
20	Oct. 2	44	John McKeon	Crushed hand	Forearm	“	“	Oct. 29, 1860
21	“ 16	40	George Brown	Compound comminuted fracture of forearm	Arm	“	“	Nov. 24, 1860
22	“ 19	38	Gottlieb Bassett	Lacerated hand and forearm	Hand at wrist-joint	“	“	Dec. 17, 1860
23	“ 21	17	William Scholfield	Gunshot wound of forearm	Arm	“	“	Nov. 28, 1860
24	“ 28	17	Aug. Donnellson	“ “ of forearm and arm	Arm	“	“	Nov. 28, 1860
25	“ 30	20	Wilson B. Smith	Caries of foot and ankle of 14 years' duration	Leg	......	“	Dec. 21, 1860
26	Dec. 8	60	John Dallas	Crushed arm and forearm	Arm	......	Died	Dec. 16, 1860
27	“ 10	30	James Howard	Lacerated wound of wrist-joint	Forearm	Immediate	Cured	March 12, 1861
	1861							
28	March 26	34	Thomas O'Brien	Compound comminuted fracture of hand	Forearm	“	“	May 6, 1861
29	“ 28	33	Jos. Brandt	Lacerated hand	Hand, wrist-joint	“	“	May 30, 1861
30	“ 31	33	Patrick Gallagher	Compound comminuted fracture of leg	Leg	“	Died	April 2, 1861
31	April 4	35	Patrick Meehan	“ “ “ of ankle	Leg	......	Cured	June 10, 1861
32	“ 11	30	Patrick Welch	“ “ “ of forearm	Forearm	Immediate	“	June 10, 1861
33	May 15	17	William Evans	Encephaloid tumour of leg	Thigh	......	“	Aug. 16, 1861

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[1] Am. Journ. Med. Sciences, July, 1866.

No.	Admission.	Age	Name.	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1861							
34	May 28	43	Richard Wilson	Frosted feet	Foot, partial	......	Cured	Sept. 23, 1861
35	June 7	34	Thomas Forbes	Compound comminuted fracture of thigh	Thigh	Immediate	"	Nov. 21, 1861
36	" 13	24	Jas. McMahon	" " " of arm	Arm	"	"	Oct. 7, 1861
37	" 13	4	Elizabeth Dillon	Lacerated foot	Foot, partial	"	"	July 25, 1861
38	" 21	4	John Harrison	" " and ankle	Leg	"	"	July 25, 1861
39	" 26	5	Jos. Coleman	Compound fracture of arm	Arm	"	"	July 25, 1861
40	" 28	38	George Ward	Compound comminuted fracture of foot	Leg	"	"	Aug. 1, 1861
41	July 2	50	Patrick Kennedy	" " " of leg	Leg	"	"	Oct. 7, 1861
42	" 4	29	John Smith	Gunshot wound of hand	Hand	"	"	Oct. 3, 1861
43	" 9	10	James Shannon	Compound comminuted fracture of arm	Arm	"	"	Sept. 9, 1861
44	" 11	50	William Grimes	" " " of leg	Leg	"	Died	July 13, 1861
45	" 18	16	Robert Diegen	Lacerated forearm	Arm	"	Cured	Oct. 3, 1861
46	" 29	14	G. Dietze	Compound fracture of humerus	Arm	"	Died	Sept. 10, 1861
47	Aug. 20	12	John Carroll	Crushed arm	Shoulder-joint	"	Cured	Oct. 7, 1861
48	" 30	26	Gottlieb Esterley	Compound fracture of wrist and hand	Forearm	"	"	Oct. 3, 1861
49	" 30	10	Henry Cummings	" comm. fract. of foot and ankle	Leg	"	"	Dec. 9, 1861
50	" 31	48	Daniel James	" " " of leg and foot	Leg	"	"	Aug. 22, 1862
51	Oct. 3	13	Bernard Clarke	Complicated fracture of ankle	Leg	"	"	Dec. 23, 1861
52	Nov. 4	10	James Langham	" " " "	Leg	"	"	Jan. 9, 1862
53	" 23	23	Jacob Diemer	Compound comminuted fract. of left leg	Thigh	"	"	Aug. 26, 1862
54	Dec. 3	27	John H. Wiggins	Necrosis of humerus	Shoulder-joint	......	"	Jan. 8, 1862
	1862							
55	Jan. 1	12	Henry Boyd	Crushed hand	Hand, wrist-joint	Immediate	Cured	March 24, 1862
56	March 1	28	John Hufller	Compound comminuted fracture of arm	Arm	"	Died	March 4, 1862
57	" 13	19	Sanford W. Albert	Deformed leg	Leg	......	Cured	July 25, 1862
58	" 14	26	Michael Keenan	Compound comminuted fracture of forearm and fracture of arm	Arm	Immediate	"	May 5, 1862
59	April 12	64	John Kirsch	Compound fracture of leg	Leg	"	Died	June 12, 1863
60	" 15	36	Edw. Schufhaatel	Lacerated hand	Hand, wrist-joint	"	Cured	May 29, 1862
61	" 17	18	Thomas Price	Mortified foot	Leg	......	"	July 10, 1862
62	May 9	13	Alex. Kennedy	Compound fracture of ankle	Leg	Immediate	"	Aug. 7, 1862
63	" 10	48	Daniel James	Ulcer of stump	Leg	......	"	Aug. 22, 1862
64	" 26	30	Patrick Barren	Compound fracture of both legs and feet	Right foot (Lisfranc)	Immediate	Died	May 27, 1862
65	" 26	30	" "	" " " "	Left leg	"	"	May 27, 1862
66	June 10	16	Isaac Miller	Compound fracture of arm	Arm	"	"	Sept. 29, 1862

No.	Admission.	Age	Name.	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1862							
67	July 7	20	Michael Haggarty	Necrosis	Leg	......	Cured	Aug. 18, 1862
68	" 15	62	Daniel McGonegle	Crushed foot	Leg	Immediate	Died	July 17, 1862
69	" 24	13	Andrew Crawford	" leg	Thigh	"	Cured	Nov. 13, 1862
70	Aug. 3	28	Michael Hegan	Popliteal aneurism	Thigh	......	Died	Aug. 6, 1862
71	" 8	35	David Martin	Crushed foot	Foot, partial	Immediate	"	Aug. 13, 1862
72	" 9	17	Dennis O'Donnell	" "	Leg	"	Cured	Dec. 22, 1862
73	" 19	17	Cornelius Strain	" hand	Wrist-joint	"	"	Nov. 12, 1862
74	" 23	36	George Fisher	" foot	Foot, partial	"	"	Jan. 9, 1863
75	" 28	9	John Nespor	" "	Foot (Pirogoff)	"	"	Nov. 17, 1862
76	Sept. 24	34	Samuel M. Lane	Compound comminuted fracture of arm	Shoulder-joint	"	Died	Sept. 25, 1862
77	" 29	17	William J. Witler	Lacerated hand	Forearm	"	Cured	Nov. 25, 1862
78	Oct. 4	35	Owen McGinley	Compound comminuted fracture of leg	Leg	"	Died	Oct. 4, 1862
79	" 13	32	Eliza Conway	Caries of foot and ankle	Leg	......	Cured	April 27, 1863
80	Nov. 14	22	Patrick Heenan	Crushed feet	Leg, left	Immediate	"	Jan. 26, 1863
81	" 14	22	" "	" "	Foot, partial	"	"	Jan. 26, 1863
82	" 30	13	John McKnight	" "	Leg	"	"	March 9, 1863
83	Dec. 18	15	Michael Allen	Compound comminuted fracture of ulna and laceration of arm	Forearm	"	"	Feb. 2, 1863
84	" 19	10	Thomas Weeks	Crushed leg	Leg	"	"	Feb. 19, 1863
85	" 25	9	Michael Conway	Compound comminuted fracture of tarsus	Leg	"	"	April 2, 1863
	1863							
86	Jan. 23	22	William A. Harvie	" " " of arm	Shoulder-joint	"	Died	Jan. 26, 1863
87	Feb. 12	42	William Conner	Frost-bite (foot)	Leg	......	Cured	June 2, 1863
88	" 21	14	James Duon	Compound comminuted fracture of leg	Leg	Immediate	Died	March 3, 1863
89	" 26	21	Charles C. Laws	Mortified foot (frost-bite)	Leg	......	"	April 28, 1863
90	March 3	42	William Browers	Deformed foot	Foot (Pirogoff)	......	Cured	May 25, 1863
91	" 13	43	Jacob Swope	Sloughing after lacerated foot	Foot (Lisfranc)	......	"	July 27, 1863
92	" 17	13	William J. Walton	Crushed hand	Wrist-joint	Immediate	"	May 11, 1863
93	" 20	16	Joseph Bowers	Lacerated hand and wrist	Forearm	"	"	April 25, 1863
94	" 23	18	John Fritz	Compound comminuted fracture of fibula	Leg	"	Died	April 18, 1863
95	April 23	22	Adam Bourker	Compound fracture of humerus	Arm	......	"	May 2, 1863
96	" 25	19	William Dunn	Lacerated hand and wrist	Forearm	Immediate	Cured	May 25, 1863
97	May 5	45	John Hargrave	Lacerated hand	Forearm	"	"	July 6, 1863
98	" 7	15	Daniel Coleman	Comp. comminuted fract. of radius and ulna	Arm, upper third	"	"	Aug. 3, 1863
99	" 9	34	William Mattock	Crushed foot	Leg, upper third	"	Died	May 21, 1863

No.	Admission.	Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1863							
100	May 21	William Totheroh	13	Crushed elbow	Arm	Immediate	Cured	July 27, 1863
101	" 29	William Webster	23	" femur (middle)	Thigh	"	Died	June 1, 1863
102	June 6	Michael Ryan	16	Compound fracture of ankle-joint	Leg	"	Cured	Sept. 8, 1863
103	" 13	Patrick Conner	37	" " of leg	Leg	"	"	Oct. 8, 1863
104	" 27	Jos. P. Helpine	8	Compound fracture of radius and tibia, upper third	Knee-joint	"	Died	July 29, 1863
105	July 11	Patrick Boyle	14	Compound fracture of os calcis	Leg	"	Cured	Oct. 15, 1863
106	" 14	Wesley Earley	14	Crushed leg	Thigh	"	"	July 28, 1863
107	" 18	James Maxwell	10	" foot	Foot (Pirogoff)	"	"	Dec. 24, 1863
108	" 18	" "	10	" hand	Forearm	"	"	Dec. 24, 1863
109	" 29	Fred. Cobden	38	Compound fracture of leg	Thigh	"	Died	July 30, 1863
110	" 30	John Woolsey	16	" " of hand	Hand	"	Cured	July 31, 1863
111	Aug 1	Patrick Curren	22	" " of arm	Arm	"	"	Oct. 3, 1863
112	" 10	Morris Launcey	12	" " of foot	Leg	"	"	Nov. 21, 1863
113	" 19	Patrick Donnelly	53	" " of foot	Foot (Chopart)	"	Died	Aug. 23, 1863
114	" 20	John Ryan	32	" " of hand	Forearm	"	Cured	Oct. 24, 1863
115	" 21	Thomas Singer	14	" " of forearm	Forearm	"	"	Oct. 5, 1863
116	" 31	Peter Robinson	32	Comp. comm. fract. of radius and ulna	Arm	"	Died	Sept. 4, 1863
117	Sept. 8	John Wise	27	" " " of leg	Leg	"	Cured	Jan. 26, 1864
118	" 19	Charles Higgins	15	" " " of leg	Knee-joint (patella left in)	"	"	Dec. 16, 1863
119	Oct. 10	Henry Chamberlain	10	" " " of leg	Leg, middle	"	"	Nov. 30, 1863
120	" 24	John Barnet	33	Gunshot wound of hand	Hand	"	"	Dec. 29, 1863
121	Dec. 26	Michael Hurley	45	Crushed hand	Forearm	"	"	Feb. 6, 1864
	1864							
122	Jan. 18	William Surran	26	Crushed arm	Arm	"	Died	April 5, 1864
123	Feb. 6	James Patterson	12	" "	Arm	"	Cured	June 20, 1864
124	" 17	Charles Leaf	38	Compound comminuted fracture of ankle	Leg	......	Died	March 27, 1864
125	" 22	Jos. Elliott	30	" " " "	Leg	......	"	Feb. 28, 1864
126	" 23	Francis Markey	13	Concussion of brain, comp. fract. of foot	Foot (Pirogoff)	......	Cured	July 14, 1864
127	March 15	David Kerr	48	Crushed forearm	Arm	Immediate	"	April 23, 1864
128	" 29	William Worrell	32	" "	Leg	"	Died	April 30, 1864
129	April 11	Bernard Mooney	28	Abscess of leg, necrosis	Thigh	......	Cured	Aug. 4, 1864
130	" 19	George Geiger	6	Compound comminuted fracture of femur	Thigh, middle	Immediate	"	June 9, 1864
131	" 20	Thomas Saunders[1]	6	do do do do	Hip-joint	"	Died	April 21, 1864

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No.	Admission.	Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1864							
132	April 20	Benjamin Emory	81	Crushed forearm	Forearm	Immediate	Died	May 22, 1864
133	" 26	Jacob Troester	45	Lacerated hand	Hand	"	Cured	June 18, 1864
134	" 29	W. J. Reibel	13	Loss of hand	Arm	"	"	July 14, 1864
135	May 2	Fred. Cook	17	Lacerated arm	Arm	"	Died	May 26, 1864
136	" 12	Ed. Gallen	34	Crushed leg	Leg, upper third	"	"	May 30, 1864
137	" 17	Eliz. Springer	13	Compound fracture and luxation of knee-joint	Thigh	......	"	June 24, 1864
138	" 18	Isaac D. Leech	23	Compound fracture of arm	Arm	Immediate	"	June 10, 1864
139	" 19	Barbara Waldberger	57	Caries of tarsus	Foot (Pirogoff)	......	"	June 24, 1864
140	" 25	Samuel Harmer	17	Leg crushed, compound comminuted fract.	Knee-joint	Immediate	Cured	Aug. 9, 1864
141	June 7	Cath. McCrossen	35	Necrosis of tibia	Leg	......	"	July 25, 1864
142	" 9	Jos. Ervin	15	" "	Leg	......	"	Nov. 25, 1864
143	" 11	John Mallon	49	Leg crushed, compound comminuted fract.	Knee-joint	Immediate	Died	June 12, 1864
144	" 11	" "	49	Leg crushed	Leg	"	"	June 12, 1864
145	" 17	John Gwillam	5	Compound comminuted fract. of left foot	Foot (Pirogoff,)	"	Cured	Sept. 6, 1864
146	" 17	" "	5	" " " of left leg	Leg	"	"	Sept. 6, 1864
147	" 24	Michael Shields	32	Abscess of wrist-joint (following a felon)	Forearm	......	"	Sept. 9, 1864
148	" 25	John Boyce	9	Lacerated leg	Leg	Immediate	"	Sept. 29, 1864
149	" 29	James Scott	68	Crushed leg	Thigh	"	Died	July 9, 1864
150	July 26	James Finley	12	Lacerated wound of hand	Hand	"	Cured	Aug. 16, 1864
151	Aug. 23	Nancy Inch	44	Compound luxation of ankle	Leg	"	"	Oct. 31, 1864
152	" 23	Patrick Mulligan	12	Compound fracture of arm	Arm	"	"	Sept. 26, 1864
153	" 24	James Hagan	3	Lacerated wound of arm	Arm	"	"	Sept. 19, 1864
154	Oct. 11	W. J. Hamilton	9	Crushed feet	Foot	"	Died	Oct. 22, 1864
155	" 11	" " "	9	" "	Foot	"	"	Oct. 22, 1864
156	" 13	Michael Gormley	35	Crushed foot	Forearm, lower third	"	Cured	Nov. 14, 1864
157	" 19	William Davis	49	" "	Forearm	"	Died	Dec. 31, 1864
158	" 29	Francis King	25	Gunshot wound of hand	Forearm	"	Cured	Feb. 10, 1865
159	Nov. 29	Jos. Fox	27	Crushed leg	Leg	"	"	March 6, 1865
160	Dec. 7	James Ferguson	27	Dislocation of knee-joint	Thigh	"	"	Jan. 31, 1865
161	" 13	Bernard Kerlin	21	Compound fracture of thigh	Thigh	"	"	April 3, 1865
162	" 15	John Maley	35	Crushed leg	Leg	"	"	June 20, 1866
163	" 16	" "	35	Ulcer of stump	Knee-joint	......	"	June 20, 1866
	1865							
164	Jan. 27	Thomas Duffy	12	Crushed foot	Leg	Immediate	"	April 24, 1865
165	Feb. 19	L. Knoop	35	Compound comminuted fracture of leg	Leg (Teale)	"	Cured	May 4, 1865

No.	Admission.		Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1865								
166	Feb.	25	John R. Gathen	30	Compound comminuted fracture of leg	Leg	Immediate	Died	March 11, 1865
167	March	7	Daniel Saddler	22	Anchylosis of arm	Arm	......	Cured	April 14, 1865
168	"	22	Richard Welsh	14	Crushed hand	Hand	Immediate	"	April 29, 1865
169	April	4	John Mullen	23	Gangrene of foot	Leg	......	"	July 10, 1865
170	"	5	Max. Rooke	23	Compound comminuted fracture of arm	Arm	Immediate	"	June 1, 1865
171	"	17	Thomas Gorman	57	Compound fracture of leg	Leg	"	Died	April 21, 1865
172	"	18	Thomas Reichner	6	" " "	Leg	"	Cured	May 23, 1865
173	"	25	Maggie Kelly	1½	Compound fracture of tibia and fibula	Leg	"	Died	May 4, 1865
174	June	25	Samuel Danielly	33	" comminuted fracture of arm	Arm	"	Cured	Aug. 2, 1865
175	"	29	William Baird	16	" fracture of foot	Leg	"	"	Aug. 28, 1865
176	July	4	Benjamin A. Stone	27	" comminuted fracture of arm	Arm	"	"	Aug. 16, 1865
177	"	6	N. Gallagher	16	Lacerated hand (partial)	Hand	"	"	Aug. 16, 1865
178	"	6	Benjamin Hopkins	18	" "	Hand	"	"	July 21, 1865
179	"	20	John S. Carman	24	Synovitis of ankle	Leg	......	"	Aug. 31, 1865
180	"	21	Valentine Vogel	45	Compound comminuted fracture of carpus	Forearm	Immediate	"	Sept. 14, 1865
181	"	25	Martha J. Reed[1]	28	Encephaloid disease of thigh	Hip-joint	......	Died	July 25, 1865
182	Aug.	5	Henry Ford	12	Compound luxation of knee-joint	Thigh	Immediate	"	Aug. 26, 1865
183	"	30	Samuel Bell	39	Mortified leg (frostbite)	Leg	......	Cured	Oct. 30, 1865
184	Sept.	16	Charles Maier	32	Crushed foot	Foot	Immediate	"	March 27, 1866
185	"	25	James McHale	35	Necrosis of humerus	Arm	......	"	Oct. 9, 1865
186	"	29	Francis Carlin	9	Lacerated foot	Foot (Pirogoff)	......	"	Feb. 13, 1866
187	Oct.	12	John McCollum	24	Neuralgia of stump	Leg	......	"	Nov. 25, 1865
188	"	17	Andrew C. Swope	21	Ulcer of stump after leg amputation	Leg	......	"	Nov. 27, 1865
189	"	19	Aug. Lively	21	Lacerated hand	Hand	Immediate	"	March 5, 1866
190	Nov.	13	W. Fesler	6	" "	Hand, partial	"	"	Dec. 22, 1865
191	"	17	John A. Ross	17	Compound dislocation of knee with fracture	Thigh	"	Died	Dec. 8, 1865
192	"	21	Ezekiel Davis	31	Wound of knee-joint (gunshot)	Thigh	"	"	Dec. 3, 1865
193	Dec.	5	Robert Reed Palmer	6	Suppuration of elbow-joint	Arm	......	Cured	Dec. 22, 1865
194	"	7	John McGee	14	Lacerated hand (gunshot)	Forearm	Immediate	Died	Dec. 31, 1865
	1866								
195	Jan.	11	Charles Bower	23	Leg crushed	Leg	"	"	April 10, 1866
196	"	15	Charles Lynch	20	Ulcer of foot	Foot (Pirogoff)	......	Cured	June 11, 1866
197	"	22	Ellen Burke	21	Lacerated hand	Hand	Immediate	"	March 22, 1866
198	"	23	Ed. D. Ulmer[2]	23	Necrosis of femur	Hip-joint	......	"	March 27, 1866
199	Feb.	24	Bernard Coyle	30	Enchondroma of elbow-joint	Arm	......	Died	March 14, 1866

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[1] Am. Journ. Med. Sciences, July, 1866.

[2] Am. Journ. Med. Sciences, July, 1866.

No.	Admission.		Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1866								
200	March	10	William Mullin	24	Crushed arm	Arm	Immediate	Cured	May 14, 1866
201	"	17	Hugh Wiley	31	Compound comminuted fracture of tibia and fibula	Knee-joint	"	"	May 28, 1866
202	"	19	Ed. Steward	10	Compound communited fracture of foot	Knee-joint	"	"	Nov. 5, 1866
203	April	9	Marg't McCausland	30	Encephaloid disease of leg	Knee-joint	......	Died	May 11, 1866
204	"	9	James McGeehan[1]	48	Necrosis of femur after gunshot wound	Hip-joint	......	"	May 3, 1866
205	"	19	Samuel Coulston	52	Compound comminuted fracture of carpus	Forearm	Immediate	Cured	May 15, 1866
206	"	28	Louis Nagel	23	" " fract. of leg (left)	Knee-joint	"	Died	May 7, 1866
207	May	5	John Marley	40	" " " of hand	Forearm	"	Cured	Aug. 2, 1866
208	"	19	William Wiley	25	" " " "	Forearm	"	"	July 25, 1866
209	"	26	A. Syd. Smith	45	Irritable stump	Arm	......	"	June 9, 1866
210	"	26	Henry Lowe	19	Compound comminuted fracture of radius and ulna	Forearm	Immediate	Died	June 17, 1866
211	June	5	Charles Brown	25	Scrofulous disease of ankle	Leg	......	Cured	July 30, 1866
212	"	14	Charles Callaghan	46	Compound comminuted fracture of leg	Leg	Immediate	Died	July 8, 1866
213	"	14	John McAuley	22	Necrosis of ulna	Forearm	......	Cured	Oct. 1, 1866
214	July	19	Mich'l W. Brannon	26	Compound comminuted fracture of arm	Arm	Immediate	"	Sept. 4, 1866
215	"	25	Thomas Gorman	12	Lacerated forearm	Forearm	"	"	Sept. 10, 1866
216	Aug.	2	John Drumm	35	Compound fracture of forearm	Arm	"	Died	Aug. 8, 1866
217	"	6	Henry Sohlinger	21	Crushed arm and shoulder	Shoulder-joint and portion of scapula	"	Cured	Sept. 25, 1866
218	"	7	George W. Jacobs	28	Lacerated arm	Arm, upper third	"	Died	Aug. 18, 1866
219	"	21	Anna Maria Haynes	39	Ulcer of thigh	Thigh	......	Cured	Oct. 15, 1866
220	"	23	James Lovell	32	Crushed tarsus	Foot	Immediate	"	Oct. 22, 1866
221	"	25	Ed. Porter	58	" leg	Leg	"	"	Sept. 12, 1866
222	"	27	Charles D. Griffith	23	Compound comminuted fract. of humerus	Arm	"	Died	Oct. 3, 1866
223	"	27	H. Pierce	48	Caries of wrist	Forearm	......	"	Sept. 13, 1866
224	Sept.	4	George Foxhill	26	Compound comminuted fracture of arm	Arm	Immediate	Cured	Sept. 28, 1866
225	"	5	Daniel Cannon	15	Compound comminuted fracture of ulna and hand	Arm	"	"	Oct. 22, 1866
226	"	12	Lewis Ashton	29	Compound comminuted fracture of arm and forearm	Arm	"	Died	Sept. 25, 1866
227	"	14	James Taylor	19	Deformity of hand	Forearm	......	Cured	Oct. 15, 1866

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No.	Admission.		Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1866								
228	Sept.	29	J. A. Woodside	23	Crushed foot	Leg	Immediate	Died	Oct. 24, 1866
229	Oct.	23	John Roddy	18	Lacerated forearm	Forearm	"	Cured	Nov. 26, 1867
230	"	26	John Wearne	22	Crushed forearm	Arm	......	Died	Nov. 19, 1866
231	Nov.	7	F. McKeon[1]	51	Axillary aneurism, subclavian ligated	Shoulder-joint	......	Cured	March 9, 1867
232	"	10	Thomas Cascaden	63	Compound fracture of forearm	Arm	Immediate	"	Nov. 29, 1866
233	"	15	William Alcorn	45	Compound comminuted fracture of arm	Arm	"	Died	Dec. 3, 1866
234	"	21	John Maguire	14	" fracture of leg	Leg	"	Cured	Jan. 9, 1867
235	"	24	William Keefe	32	Gunshot wound of hand	Forearm	"	"	Dec. 10, 1866
236	Dec.	3	William Watkins	19	Lacerated hand	Hand	"	"	Feb. 1, 1867
	1867								
237	Jan.	19	Hugh Sweeney	24	Compound comminuted fracture of leg	Leg	"	"	
238	"	"	" "	24	Ulcer of stump	Leg	......	"	Aug. 27, 1867
239	April	1	Dennis Gallagher	22	Compound fracture of ankle	Foot (Pirogoff)	Immediate	"	July 10, 1867
240	"	26	A. L. Cloud	5	" " of leg	Leg	"	"	June 6, 1867
241	"	26	James Dunn	22	" " of leg	Knee-joint	"	Died	July 1, 1867
242	"	26	D. T. Banks	16	Gangrene following frostbite	Leg	......	Cured	Aug. 14, 1867
243	"		" "	16	" " "	Leg	......	"	Aug. 14, 1867
244	May	17	John Welte	24	Crushed arm	Arm	Immediate	"	July 6, 1867
245	"	24	H. A. Demuth	7	Lacerated hand	Forearm	"	"	June 20, 1867
246	June	19	John Dady	26	Compound fracture of leg	Leg	"	Died	June 30, 1867
247	"	19	William Walters	20	" " "	Leg	"	Cured	Oct. 6, 1867
248	"	27	W. C. Daily	24	" " "	Leg	"	Died	July 1, 1867
249	July	6	P. Fenney	59	" " "	Leg	"	"	July 21, 1867
250	"	12	Henry Potts	10	" dislocation of ankle	Leg	"	Cured	Oct. 10, 1867
251	"	13	Peter Young	12	" fracture of femur	Thigh	"	"	Sept. 14, 1867
252	Aug.	16	John E. Evans	34	" dislocation of ankle	Leg	"	Died	Sept. 14, 1867
253	"	24	Charles Wilkins	23	Crushed knee-joint	Thigh	"	"	Aug. 24, 1867
254	Sept.	12	H. Stark	14	" forearm	Forearm	"	Cured	Oct. 11, 1867
255	"	23	William H. Buck	42	" leg	Leg	"	"	Dec. 30, 1867
256	Oct.	7	Samuel Bronsen	12	Extensive ulcer of arm (from burns)	Shoulder-joint	......	"	Jan. 6, 1867
257	"	26	Th. Mulligan	22	Compound fracture of leg	Knee-joint	Immediate	"	Nov. 23, 1868
258	Nov.	26	Richard Jeffries	38	" " of hand	Forearm	"	"	Dec. 12, 1867
259	"	28	Thomas Heckler	27	" " "	Forearm	"	"	Dec. 12, 1867

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No.	Admission.	Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1868							
260	Feb. 27	E. M. Kerr	50	Crushed thigh	Thigh	Immediate	Cured	April 20, 1868
261	April 2	Daniel Boyle	21	" foot and ankle	Leg	"	"	April 6, 1869
262	" 29	Evan Thomas	8	" foot	Foot (Pirogoff)	"	"	Aug. 5, 1868
263	May 2	Charles Ross	19	Gangrene following frost-bite	Leg	......	Died	Nov. 28, 1868
264	" 2	" "		" " "	Leg	......	"	Nov. 26, 1868
265	" 16	W. O. Wiggins	23	Crushed arm	Arm	Immediate	Cured	June 1, 1868
266	June 4	James McFadden	33	Necrosed ankle	Leg	......	"	Oct. 19, 1868
267	" 17	John Hollywood	30	Crushed foot and ankle	Leg	Immediate	"	Aug. 25, 1868
268	" 26	H. Baumgarton	9	" leg	Knee-joint	"	"	Oct. 5, 1868
269	July 3	Gustay Forber	20	" foot	Leg	"	"	Oct. 25, 1868
270	Aug. 6	H. Hirst	26	" arm	Arm	"	"	Aug. 27, 1868
271	" 6	Patrick Keenan	38	Compound fracture of leg	Leg	"	"	Nov. 4, 1868
272	" 12	George Brinkley	30	Crushed tarsus	Leg	"	Died	Aug. 31, 1868
273	" 26	John Boyle	24	Encephaloid of leg	Knee-joint	......	Cured	Dec. 9, 1868
274	Sept. 10	W. Steward	13	Crushed leg and knee	Thigh	Immediate	"	Oct. 23, 1868
275	" 12	H. B. Neunam	25	Gangrene (crushed hand)	Forearm	......	"	Sept. 24, 1868
276	" 21	William Doran	37	Compound comminuted fracture of arm	Shoulder-joint	Immediate	Died	Oct. 2, 1868
277	Oct. 9	James Elliott	23	Exostosis on femur	Thigh	......	Cured	Jan. 29, 1869
278	" 9	John Hairland	70	Crushed leg	Knee-joint	Immediate	Died	Oct. 19, 1868
279	" 13	Robert Timbers	30	" hand	Forearm	"	Cured	Oct. 26, 1868
280	" 16	James Shields	49	Necrosis of femur	Thigh	......	Died	Nov. 16, 1868
281	Nov. 4	John Hollywood	30	Osteomyelitis following compound fracture	Knee-joint	......	Cured	Feb. 8, 1869
282	" 18	Sarah McDevitt	13	Lacerated hand	Wrist-joint	Immediate	"	Dec. 11, 1868
283	Dec. 5	William McNeal	32	Crushed leg	Knee-joint	......	Died	Jan. 22, 1869
284	" 24	H. Reynard	65	" forearm	Arm	Immediate	"	Jan. 31, 1869
	1869							
285	Jan. 6	Walter Brough	39	Irritable stump	Arm	......	Cured	Feb. 15, 1869
286	Jan. 11	Ellen Murray	14	Lacerated hand	Hand	Immediate	"	Feb. 20, 1869
287	Feb. 12	Dominick Wunsch	24	Compound comminuted fracture of arm	Forearm	"	"	March 16, 1869
288	" 19	Israel Fisler	26	Necrosis of carpus	Forearm	......	"	July 9, 1869
289	" 26	John Coyle	15	Crushed arm	Shoulder-joint	......	"	May 17, 1869
290	" 27	Thomas W. Davis	19	" hand	Hand	Immediate	"	March 13, 1869
291	March 8	Fred. Arnold	26	Lacerated hand	Forearm	"	"	May 10, 1869
292	April 1	Christ. Bott.	42	Compound fracture of foot	Foot (Syme)	"	"	June 21, 1869

No.	Admission.	Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death
	1869							
293	April 5	Abigail Bundy	56	Ulcer of the leg	Leg	......	Died	May 26, 1869
294	May 8	Th. Davis	19	Ulcer of stump	Forearm	......	Cured	May 17, 1869
295	" 19	George W. Sitley	19	Crushed leg	Knee-joint	Immediate	Died	May 27, 1869
296	" 20	Arch. Glanding	28	Crushed foot	Foot (Chopart)	"	Cured	July 29, 1869
297	June 3	Ed. Morrow	22	Encephaloid tibia	Thigh	......	"	Jan. 20, 1870
298	" 13	Th. Riley	45	Crushed foot	Foot (Lisfranc)	Immediate	Died	June 19, 1869
299	" 14	John McGinnis	50	" leg	Leg (Teale)	"	"	June 29, 1869
300	" 21	M. Moore	32	Lacerated wound of hand	Forearm	"	Cured	July 21, 1869
301	July 3	J. P. Deputy	38	Compound comminuted fracture of leg	Knee-joint (after transfusion)	......	Died	July 19, 1869
302	" 5	David Gibson	38	" forearm	Forearm (Teale)	Immediate	Cured	Aug. 14, 1869
303	" 13	John White	9	" leg	Knee-joint	"	"	Nov. 3, 1869
304	Aug. 3	John Boyce	12	" hand	Elbow-joint	"	"	Sept. 14, 1869
305	" 5	George Connelly	8	Compound comminuted fracture of leg	Leg	"	"	Dec. 20, 1869
306	" 11	James Johnson	10	" " " of leg	Leg	"	Died	Sept. 18, 1869
307	" 14	John Collins	8	" " " of foot	Leg	"	Cured	Sept. 9, 1869
308	" 16	Philip McMann	12	" " " of ankle	Leg	"	"	Nov. 19, 1869
309	" 18	Joseph McAdams	12	" " " of foot	Foot (Pirogoff)	"	"	Nov. 6, 1869
310	" 22	M. Craig	24	Compound luxation at knee-joint, rupture popliteal artery, followed by tetanus	Knee-joint	......	"	Nov. 16, 1869
311	Sept. 1	I. F. R. Smith	29	Crushed foot	Foot (Hey)	Immediate	Died	April 18, 1869
312	" 13	H. Kelley	13	" "	Foot (Pirogoff)	"	Cured	Dec. 31, 1869
313	" 21	W. J. Mitchell	15	Compound comminuted fracture of leg	Knee-joint	"	"	Nov. 20, 1869
314	" 23	Mich. Trainer	50	" " " of ankle	Leg	"	"	Dec. 28, 1869
315	" 24	Charles Femple	9	Crushed hand	Elbow-joint	"	"	Sept. 25, 1869
316	Oct. 15	James Mealy	30	" arm	Arm		"	Nov. 4, 1869
317	" 18	W. W. Snyder	22	" hand	Forearm (Teale)	"	By request	Oct. 28, 1869
318	" 27	Thomas Davis	30	Fracture of tarsus	Foot	"	Cured	Jan. 27, 1870
319	Nov. 19	Sarah A. Wilson	34	Necrosed ankle	Leg	......	"	March 29, 1870
320	Dec. 29	Charles Lounsberry	34	Chronic synovitis	Thigh	......	Died	Jan. 15, 1870
321	" 30	Samuel Wiley	21	Popliteal tumour, fibroid	Thigh	......	Cured	March 24, 1870

From January 1, 1860, to January 1, 1870, 321 major amputations were performed at the Pennsylvania Hospital upon 311 patients.

Of this number 227 were cured, and 83 died, and 1 removed.

Of	29 thigh	amputations	17	were cured,	and	12	died.
“	5 hip-joint	“	2	“	“	3	“
“	22 knee-joint	“	12	“	“	10	“
“	102 leg	“	70	“	“	32	“
“	30 foot and ankle	“	22	“	“	8	“
“	10 shoulder-joint	“	7	“	“	3	“
“	50 arm	“	34	“	“	16	“
“	2 elbow-joint	“	2	“	“		
“	48 forearm	“	42	“	“	5	“
			1 removed by request.				
“	23 wrist and partial of hand	amputations	23	were cured.			

Of the 321 amputations 239 were primary; of these 176 were cured, 63 died; 22 were secondary operations, of these 11 were cured, and 11 died; 60 were amputations for chronic diseases, of these 51 were cured, and 9 died.

61 amputations were done at the joints; of these 44 were cured, and 17 died.

134 were amputations of the upper extremities; of these 111 were cured, and 23 died.

187 were amputations of the lower extremities; of these 124 were cured, and 63 died.

114 patients were under 20 years of age; of these 98 were cured, and 16 died.

84	patients	were	between	20 and	30;	of these	63	were	cured,	and 21	died.
65	“	“	“	30 “	40;	“	45	“	“	“ 20	“
25	“	“	“	40 “	50;	“	16	“	“	“ 9	“
23	“	“	above	50 years of age;			7	“	“	“ 16	“

Adding these results to the statistics of amputations performed at the hospital during the previous thirty years, published by Dr. Norris (and to whom I am indebted for notes of several of the years), we find that in 749 amputations, upon 735 patients, performed during the forty years from 1830 to 1870, 548 were cured, and 186 died, and 1 removed.

500 were primary operations, performed during the first twenty-four hours after receipt of the accident, of which 117 died; 105 were secondary, of which 42 died; 144 were for diseases of a chronic character, of which 27 died.

232 of the patients were under 20 years of age, of whom 206 were cured, and 26 died; 217 were between 20 and 30, of whom 164 were cured, and 53 died; 152 were between 30 and 40, of whom 105 were cured, and 47 died; 87 were between 40 and 50, of whom 56 were cured,

and 31 died; 44 were upwards of 50, of whom 23 were cured, and 21 died.

Ether has been almost invariably used as the anæsthetic, and no death has, I believe, ever occurred in the hospital from its use; occasionally ether has been combined with chloroform, one sudden death (Case 165), however, occurred with the use of this mixture, during the removal of a fragment of necrosed bone following a leg amputation; the nitrous oxide gas I have used in very many minor operations, and in eight amputations of limbs, and have found it satisfactory when the operation was not prolonged.

Art. II.—*On the "Synclitism" of the Fœtal Head in Natural Labour.* By Hugh L. Hodge, M. D., Emeritus Professor of Obstetrics and Diseases of Women and Children in the University of Pennsylvania. (With two wood-cuts.)

The number of the *Edinburgh Medical Journal* for June last contains some critical remarks by Dr. J. Matthews Duncan, on what M. Kueneke terms the synclitic movement of the fœtal head during its descent through the cavity of the pelvis and vagina, in natural labour. Not having seen M. Kueneke's work, my only knowledge of his views of the mechanism of labour is derived from Dr. Duncan's paper, and I am, therefore, unable to express any opinion as to how far these views may be consistent with the idea of the synclitic movement of the head, or to what extent he is amenable to criticism.

The whole subject, however, is most interesting and important, and its practical value can hardly be estimated. This circumstance, with a sincere desire of having this subject fully examined, induces me to offer to the consideration of the profession my views in regard to it.

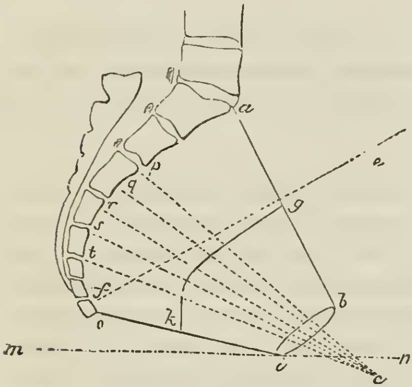
In all such scientific discussions it is very difficult to express our ideas with so much precision as to be clearly understood. Hence differences of opinion are often more apparent than real, a little explanation often resolving the difficulty. Perhaps, therefore, the theory of M. Kueneke may be reconcilable to correct views upon the mechanism of labour.

Synclitism, or parallelism of the plane of the child's head, in cases of natural presentation, to the planes of the pelvis and of the vagina, is one of my favourite doctrines, and has been taught by me with more or less fulness and precision, since the year 1832. My confidence in its truth has been continually strengthened by careful observation, and the ideas I entertain in regard to it are detailed at length, and to a considerable extent illustrated, in my work on the *Principles and Practice of Obstetrics.*

I know, however, that it would be impossible for Dr. Duncan and myself to agree upon this point, unless, what seems to be equally impossible, we could come to some prior agreement as to the axis and planes of the pelvis and vagina, and as to the mode in which the head presents and moves through the obstetric canal.

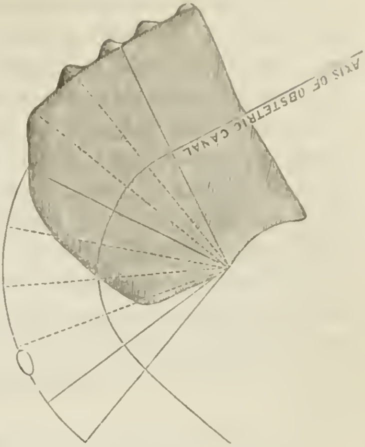
First. As to the planes of the pelvis. There can be no doubt that the planes through which the child's head descends till the top of the head reaches the floor of the pelvis, are all parallel to each other as low down as the top of the arch of the pubis, and of course at right angles to the axis of the superior strait, or brim; but below this it is universally agreed that the planes are oblique; as to the degree of obliquity authors differ. The most usual representation is given by lines drawn from various points on the sacrum and coccyx, below the third sacral vertebra, through the symphysis pubis, converging to a point exterior to the pelvis (see Fig. 1). Certainly the head does not pass perpendicular to such planes. If, however, from the same points in the posterior part of the pelvis, the lines should converge to the subpubic ligament, or top of the arch of the pubis, they would represent planes of the pelvis through which the child descends, I believe, perpendicularly, during the latter part of labour. Lines similarly converging to the pubis, drawn from the posterior wall of the distended vagina even to the frænum vaginæ, would represent the successive planes of this canal, through which the head passes synclitically until the parietal protuberances pass the vulva. My reason for thus describing these planes is that the child's head revolves under the arch of the pubis at the termination of labour; its sub-occipital or cervical region being applied to the top of the arch of the pubis. In other words, the cervico-bregmatic diameter of the child's head may be regarded as a radius describing the segment of a circle, the centre of which is at the subpubic ligament.

Fig. 1.



Second. As to the obstetric axis. The direction of this is perpendicular to the plane of the superior strait or brim, and then to each successive plane of the upper part of the pelvis, to the third sacral vertebra. Then it varies so as to correspond with the perpendicular of each plane through which the head passes. As these inferior planes represent radii of a circle, the obstetric axis will here, of course, be represented by the circumference of a smaller circle, passing through the centre of each plane to that of the distended orifice of the vagina. The first part of the axis, therefore, is straight; being coincident with that of the brim; the lower part is the segment of a circle; the whole representing the line which the head follows during the progress of descent and delivery (see Fig. 2.)

Fig. 2.



As to the "curve of Carus," which has been often quoted with approbation by many high authorities in this country and Europe, I think it must be admitted to be erroneous. He describes a circle with a radius of two and a quarter inches, from the middle of the posterior margin of the symphysis pubis. This would indicate that the child's head describes a segment of a regular circle from the brim to the outlet, and is altogether inconsistent with the fact that the child descends directly in the axis of the brim till the sinciput reaches the floor of the pelvis, and, moreover, it would not be at the centre of the plane of the inferior outlet. It would approach too near the pubis.

Third. The lateral inclined planes of the pelvis, have not been brought into notice either by Dr. Duncan, or by the gentlemen whom he quotes. These planes exert a most important influence upon the progress of the head, especially as regards rotation. They are, I believe, four in number, two anterior and two posterior. Many authors ignore these planes, and few describe them with any degree of minuteness. In my work I have gone into details upon the subject, and endeavoured to show that the extremities of the spines of the ischia, indicate the boundaries between the anterior and posterior inclined planes, and also that these planes are greatly prolonged by the distension of the perineal tissues, to the middle line of the perineum. Rotation, therefore, is partially affected by the occiput pressing against the side of the pelvis and then against the levator ani muscle, covered by its fascia and other tissues, as it descends towards the rectum. I do not perceive how all the movements of descent in the oblique positions of the head can be explained without taking cognizance of these inclined surfaces and their influences upon the movements of the fœtal head.

Fourth. As regards the word "vertex," obstetricians ought certainly to come to some understanding, if anything like precision is to be expected as to the mechanism of labour. Nægelè virtually includes the whole upper part of the cranium in the idea of a vertical presentation. Others would restrict it to the central portion of the sagittal suture, and others again would refer it to the occipital region of the head. The true meaning of the word "vertex" is the apex or top of the head. Hence, if a person stood erect, with the head in a horizontal direction, the real top or apex of the head would be about the middle of the sagittal suture. But if the chin be approximated to the breast, the head being in a state of flexion, the apex will then be at the posterior extremity of the sagittal suture. Now, as the child descends in natural labour, with the head flexed, the region of the posterior fontanel, or "crown of the head," is usually called the vertex. This region may be described as a circle, the centre of which is the posterior termination of the sagittal suture, and its radius extending from this point to the occipital protuberance. This circle will extend as far forward as the middle of the sagittal suture, and constitutes, I believe, the real presenting part of the head, in favourable labours.

The word "Sinciput" is still more indefinitely employed. It may be considered as representing the region of the anterior fontanel.

Fifth. As to the presenting part, not "point," of the child's head, which has elicited so many definitions and given rise to so much discussion, and, I may add, to many errors, in the study of the mechanism of labour, Dr. Duncan's definition and my own are very similar. He defines it as "that point on the surface of the child's head through which the axis of the developed pelvic canal passes." My definition is, "that portion of the fœtal ellipse which is recognized toward the *centre* of the canal of the pelvis and vagina." This portion, in cases of favourable labour, is the vertex; not merely a point in the sagittal suture, but any point between this and the occipital protuberance, according to the degree of flexion or extension of the child's head as it passes through the various planes of the obstetric canal.

I cannot help, therefore, agreeing with M. Kueneke, that this portion of the child's head, or vertex, presents towards the centre of the canal from the beginning to the end of descent, and, of course, differ from Dr. D. and most others, in transferring this portion from the line of the sagittal suture to the anterior parietal bone.

All these definitions involve many points of great importance, in which again Dr. D. and I appear to differ. The vertex, according to my views, cannot present, unless the head be in a state of flexion, so that while the vertex is the most dependent portion, the chin, at the breast of the child, is the most elevated point of the head. Hence the occipito-mental diameter, and not the vertical, as Dr. D. mentions, is parallel to the axis of the brim at the commencement of descent. Hence, also, the cervico-bregmatic circumference is parallel to the plane of the superior strait, and not the occipito-frontal circumference, which would be the case if the vertical diameter of the head was coincident with that of the brim.

This occipito-bregmatic circumference is represented by a line drawn over the base of the occiput, the parietal protuberances, and the anterior extremity of the sagittal suture, and may be regarded, practically, as a *circle;* its two important diameters being the transverse or bi-parietal and the perpendicular, so-called, or cervico-bregmatic diameter. Hence a section of the head, through these points, may be called the plane of this circumference, and it is this plane which, in my judgment, presents parallel to all the planes of the pelvis and vagina, from the superior strait or brim, until the delivery at the vulva. The axis of this cervico-bregmatic plane is the occipito-mental diameter of the head, which diameter, therefore, is coincident with the axis of the obstetric canal, as above defined; that is, coincident with the axis of the brim, until the top of the head reaches the floor of the pelvis, and then with the axis of each of the successive oblique planes of the lower part of the pelvis and of the distended vaginal canal to its extreme orifice.

These views, which I have taught during the whole of my professorial course in the University of Pennsylvania, are, I suppose, in unison with what M. Kueneke terms the "synclitic" movement of the child's head in natural labour, although they may be inconsistent with some of his statements and with his ideas of the mechanism of labour, as Dr. Duncan has endeavoured to show. I did not originate these views, although I may have presented them with more precision and detail than my predecessors—they belong to the French school of obstetrics. Velpeau speaks of the parallelism of the head at the inferior strait in opposition to the views of the Heidelberg professor, M. Nægelè, which have been so generally adopted in modern times, especially in Great Britian. Cazeaux, one of their latest writers, although perfectly acquainted with Nægelè's theory upon this point, also insists upon this parallelism of the head. In this country, my predecessor in the obstetric chair, Dr. Wm. P. Dewees, who was familiarly called the "Baudelocque of America," taught the same doctrine more than fifty years ago, and by him it has been transmitted to the thousands of students of the University, and to the physicians who have read his invaluable writings.

Perhaps it will not be a vain repetition if I should endeavour to illustrate my views of the mechanism of labour in the occipito-anterior positions of the vertex, by tracing the descent of the child's head through the os uteri and the obstetric canal in a "given" position of a vertex presentation, in a primiparous woman.

I will simply premise that the child's head may be regarded as having passed *through* a plane when its parietal protuberances have passed, as these are the most prominent points upon its lateral surfaces. The child's head may be said to be *in* a plane when these protuberances are opposed to any part of the circumference of such plane. It has not entered a plane when the parietal protuberances are still above its level, however much of the head may project through the plane. All this is exemplified to the touch as well as to the eye during the last act of delivery. The occiput may project for some time at the vulva before this orifice is sufficiently distended to admit the whole cervico-bregmatic circumference; but as soon as the dilatation is adequate the parietal protuberances pass the lateral margins of the orifice, and delivery is virtually accomplished.

For our illustration, as presenting the most simple view of the mechanism of labour, we still take, not an oblique position of the head, which has some complications, but a direct one, namely, the "occipito-pubic position" of the "vertex presentation," the third of Baudelocque, but which, as we think, has been unnecessarily thrown out of view by M. Nægelè.

By the time the os uteri is nearly or quite dilated, in a primiparous patient, the bag of waters usually ruptures, and the whole force of the contractions of the uterus are immediately directed upon the body of the child, which is therefore compressed into a comparatively small space, the limbs towards the abdomen, while the imperfect flexion of the head becomes gradually increased. If the resistance of the os uteri be considerable, this flexion becomes more complete, so that the occipital protuberance will be observed towards the pubis, the lambdoidal sutures converging on either side towards the sagittal suture. In a longer or shorter time the anterior margin of the os uteri slips over the protuberance of the occiput and retracts over the parietal protuberances to the face or neck of the child. The head is now left engaged *in* the superior strait, with the base of the occiput towards the top of the pubis, the parietal protuberances opposed to the sides of the brim, while the anterior fontanel will, with more or less precision, be opposite the promontory of the sacrum. Here there will probably be some delay, as the head is attempting to enter through the short or conjugate diameter of the brim, but in proportion to such delay will be necessary the increase of flexion, for the whole bearing-down force of the mother is, as Dr. Duncan well represents it, directed chiefly upon the short arm of the lever of the head, through the medium of the spine of the child. The os occipitis, therefore, descends, while the os frontis is resisted by impinging against the promontory of the sacrum. Hence flexion is perfected; the posterior part of the sagittal suture, or vertex, will be found at the centre of the pelvis, the base of the occiput to the pubis, and the anterior fontanel, or anterior extremity of the sagittal suture, at the sacrum. Hence the cervico-bregmatic diameter of the head is parallel to the sacro-pubic diameter of the superior strait, while the bi-parietal, or transverse diameter of the head, is parallel to the bis-iliac or transverse of the brim, and the occipito-mental is coincident with the axis of the superior strait. Hence the plane of the occipito-bregmatic circumference is parallel to the plain of the superior strait. This is synclitism.

I can hardly suppose that the statement thus given will meet with any objection, inasmuch as if the head be not in a state of flexion, as I maintain, the protuberance of the occiput will be at the pubis, and the anterior portion of the os frontis, or forehead, will be at the promontory of the sacrum, in which case the head will be arrested, because the occipito-frontal diameter will be parallel with the short or conjugate diameter of the brim. Then the sagittal suture would run nearly in a direct line from the anterior to the posterior part of the pelvis, and the two fontanels would be at the same level. When, however, flexion has occurred, the posterior fontanel will be found lower down and nearer the centre of the strait, and the anterior higher up, and nearer the promontory, while the sagittal suture will be found to run not only backward, but obliquely upward.

The process of labour continuing, the child's head descends precisely in the same direction till the sinciput reaches the floor of the pelvis, and the occiput has glided along the posterior or inner surface of the body of the pubis. The whole head descending thus far through a cylinder, as M. Schroeder would express it, the occipito-mental diameter coincident with that of the axis of the brim, and the cervico-bregmatic plane parallel to each plane of such cylinder, till it reaches the level of the third sacral vertebra behind, and the top of the arch of the pubis in front. By the time this is accomplished the os frontis has descended below the promontory of the sacrum, and the occiput appears under the arch of the pubis, when, as Dr. Dewees would express it, the chin begins to leave the breast, or, more accurately, the process of extension commences. Now the further descent of the head is resisted by the sinciput striking against the floor of the pelvis, and anteriorly, by the neck of the child pressing against the pubis. The driving force continues to operate and chiefly upon the occiput through the medium of the spine. This portion of the head then descends towards the perineum as far as practicable, but the resistance here being also great, the head passes off diagonally between these opposing forces, and describes a circular motion on the base of the occiput under the arch of the pubis, where it is comparatively at rest. Hence the process of extension is continually increasing until the occiput has somewhat dilated the vulva and the parietal protuberances will be perceived on either side at the tubers of the ischia, while through the rectum the anterior fontanel can be detected at the perineum or coccyx. The head, now partially extended, presents at the inferior strait, with the same diameters and the same planes which were recognized at the brim, and the occipito-mental diameter, which was coincident with the axis of the brim, is now in unison with that of the inferior strait; the chin pointing towards the concavity of the sacrum, while the vertex, as represented by the posterior fontanel, is at the centre, not of the vulva, but of the inferior strait. The plane, therefore, of the occipito-bregmatic circumference is parallel to the plane of the inferior strait.

Now, as the head moved in this regular manner through the upper or cylindrical portion of the pelvis, presenting its equatorial plane, as Dr. Barnes might term it, parallel to the planes of the cylinder, till the sinciput reached the floor of the pelvis, so, during the gradual process of extension, through the curved portion of the canal, the same cervico-bregmatic plane became parallel to each successive oblique plane of the curved portion of the canal, to the inferior strait. The parietal protuberances will always be found at the sides of the pelvis, and as the occiput gradually advances under the arch of the pubis, the posterior fontanel is found towards the centre of each plane till it reaches the outlet of the pelvis.

The bearing-down efforts of the mother now force the child more and more against the perineum, the process of extension continues, till eventually the occiput gets in front of the pubis, the parietal protuberances on either side of the vulva, and the posterior fontanel is observed clearing the perineum at the centre of the dilated orifice of the vagina, so that again we have the cervico-bregmatic plane engaged, but now parallel to the plane of the orifice of the vagina. Hence the head passes through the canal of the vagina in this circular manner, presenting its equatorial plane parallel to the various oblique planes of the vagina.

If this representation be correct, the fœtal head, "at term," notwithstanding its apparent irregularity of form, traverses the obstetric canal with as much readiness and precision, continually presenting the same diameters to the walls of the canal, and the same diameter of the head, to the axis of the obstetric canal, as if it were a perfect sphere of about three and a half inches in diameter.

This seems to me a correct representation of the synclitic movement of the child's head—in other words, the parallelism of the plane of the great occipital extremity—in relation to those of the pelvis and vagina.

If we now consider the First position of the vertex, the left occipito-anterior, the process is rather more complicated, from two causes. The first is that the head is no longer direct, but oblique, at the superior strait, and subsequently in the cavity of the pelvis; and the second, resulting necessarily from the first peculiarity, is the necessity of a rotatory movement of the head, that the occiput may pass under the pubis.

If the propositions already assumed be granted, these difficulties immediately vanish. For if the head passes through the os uteri in a state of flexion, presenting its cervico-bregmatic circumference to the circle of the os uteri and that of the superior strait, it may practically be regarded as a sphere or ball to be driven through the planes of the canal. Hence it would be a matter of no moment whether it did or did not rotate upon its axis, for diameters of the same length would always be coincident with those of the obstetric passages. Parallelism of planes, therefore, would ensue.

To be, however, more precise. In this first position, as in the former, the resistance of the os uteri, or the margin of the superior strait, against the anterior parts of the head of the child, while the uterine forces are driving down the occiput through the medium of the spine, necessitates flexion of the head to a greater or less degree. Hence, after the os uteri has retreated, the head will be found oblique, not only because it extends diagonally from the left ramus of the pubis to the right sacro-iliac symphysis, but also because the occiput is lower in the pelvis than the forehead and the face. Hence the posterior fontanel will be found not on the same level with, but lower than the anterior fontanel; and the sagittal suture, therefore, not running directly across the pelvis, but obliquely upward as well as backward.

The parietal protuberances of course present obliquely to the right and left sides of the pelvis, while the base of the occiput will be towards the left anterior part of the pelvis, and the anterior fontanel towards the right sacro-iliac symphysis. Hence we have the cervico-bregmatic diameter parallel to one of the oblique, and the bi-parietal to the other oblique diameter of the brim, while the posterior extremity of the sagittal suture will be found towards the centre of the pelvis, and the chin, being directly opposed to it, will be the most elevated part of the head.

I can hardly expect that all this will be conceded by Dr. Duncan, as he, in common with almost all British authorities, speaks of the "vertical" diameter as being coincident with the axis of the uterus and of the brim, and of the two fontanels as being nearly upon a level, all of which would involve the idea that the occipito-frontal diameter is parallel with the oblique diameter of the brim, and, of course, that there is a synclitism of the plane of the brim with that of the occipito-frontal circumference, and not with that of the cervico-bregmatic circumference, as I believe. The truth, of course, of this question can only be ascertained by careful observation. That the head will be found in the position Dr. D. describes, in many cases of labour, there can be no doubt, owing to the greater length of the oblique diameter of the pelvis, the relaxation of the os uteri, or the diminutive size of the head. In exact proportion, however, to the resistances of the os uteri or of the bones of the pelvis, will be the greater flexion of the head, and, of course, the accuracy with which its cervico-bregmatic circumference becomes parallel with the plane of the superior strait, and hence the occipito-mental diameter coincident with the axis of the brim.

The head descending into the cavity of the pelvis to its floor, presents virtually the same diameters, and soon the process of extension commences. This is often slow, inasmuch as another process, that of rotation, must precede and accompany it. It is not necessary to inquire at this time how this rotation is effected, as all acknowledge its necessity as well as its existence. As already intimated, I believe it is dependent upon the inclined planes of the pelvis, and their prolongation by the soft tissues to the middle line of the perineum. The question arises—and here, I am sorry to say, Dr. D. and I again differ—On what diameter does the head rotate? Not on the vertical, as he declares, as this would indicate that the head was situated directly across the pelvis, that is, the occipital protuberance towards the left foramen ovale and the forehead opposite the sacro-ischiatic foramen, and the anterior fontanel opposed to the coccyx. I think it will be found that the posterior fontanel is nearer the centre of the floor of the pelvis, and the anterior fontanel, and not the forehead, opposed to the sacro-ischiatic foramen. Hence the occipito-mental diameter constitutes the axis upon which the head rotates. If this be true, it seems to me to necessitate the parallelism of the cervico-bregmatic plane with the planes of the lower part of the pelvis during the process of rotation. This rotation is never complete until the head is fairly engaged in the inferior strait. By this time the process of extension, which had been retarded by the impingement of the occiput upon the side of the pelvis, advances with more rapidity until the parietal protuberances are observed at the tubers of the ischia, and the base of the occiput at the sub-pubic ligament. The small or equatorial plane of the head now presents parallel to that of the inferior strait, as was noticed when speaking of the third position of the vertex. If, therefore, we adhere to Dr. Duncan's definition of presentation as "that point of the surface of the child's head through which the *axis* of the developed pelvic canal passes," I think it will be found that the posterior extremity of the sagittal suture, or the angle formed by the two parietal bones, will be found towards the centre of the canal of the pelvis. Of course it gradually advances as the occiput approaches the arch of the pubis, and then more rapidly in proportion to the degree of extension that ensues, the presenting part being always central to that particular plane through which the head is passing.

This rejects altogether the usual mode of judging as to what part presents. We cannot determine this question by the position of the caput succedaneum, for reasons Dr. D. has well detailed. Neither can the question be settled by examining what part of the child's head is felt at the orifice of the vagina, because, in the first place, the orifice of the vagina is never parallel with any plane of the pelvis, and should be regarded as situated at the *anterior* part of the cavity; and in the second place, the part of the head felt towards the orifice of the vagina is continually changing during the process of rotation, so that in many cases the anterior part of the parietal bone, its posterior part, and then the side of the occiput may be felt in succession at the opening of the vagina before the occipital protuberance fairly emerges. If, however, the finger be directed to the true vertex, this part will be found nearly stationary, during the process of rotation, except that it advances slowly along the perineum. If, therefore, the occipito-mental diameter be thus constantly coincident with the obstetric axis, and the whole posterior portion of the head be represented by the figure of a ball, each of its diameters measuring three and a half inches, it follows, I think, that there is a necessary parallelism of this equatorial plane with the planes of the pelvis. This view is not invalidated by the fact, recorded by Nægelè, that in many instances the right parietal protuberance escapes first at the inferior strait, as this would only show that the head is small enough to be delivered before rotation is complete, but is not really inconsistent with the synclitism for which we contend. I must, however, believe that careful observation will show that such an escape of the parietal protuberance occurs in easy labours only; that when the customary resistances are present, as in first labour, the head being of normal size, each parietal protuberance finds its exit upon the same level at the tubers of the ischia, while the sagittal suture and anterior fontanel will be found in the middle line of the perineum.

Dr. Duncan's declarations that "continued synclitism is conceivable *during* and after rotation," and, moreover, "that there arises from the mechanism a direct tendency to the production of the synclitic condition there can be no doubt," gives me much pleasure. But in another place he observes, "The tendency to the synclitic movement is prevented by two causes. First, the driving force operates chiefly on the occipital portion of the head, through the spine; and, second, the greater resistance of the pelvis posteriorly, as compared with that anteriorly towards the symphysis. These prevent the synclitic movement."

How these two circumstances prevent the tendency to a synclitic movement, I am at a loss to comprehend; for, on the contrary, they seem to me to necessitate synclitism of the head by increasing the flexion of the child's head when it is high up, and its extension when low down in the pelvis or in the vagina.

Respecting the quotation given by Dr. Duncan from Dohrn, as to the "shearing" of the child's head, I do not, perhaps, comprehend his full meaning, but I must agree with Dr. Duncan in believing that the vertical shear to which he alludes does not occur at the superior strait in cases of natural labours, but I have observed it in cases where the conjugate diameter was contracted. In respect to the second or lateral shear, it includes, if I understand it, those circumstances which determine the rotation of the head in the inferior part of the pelvis, and may, as he observes, give rise to the lateral shearing of the head, as described by Dohrn. I should not, however, regard this as of any practical importance. My own belief is that the head of the child, during descent, in all the occipito-anterior positions, impinges much more firmly against the anterior portions of the cavity, and that the rotation of the head is dependent, in these cases, upon one or other, as the case may be, of the anterior inclined planes of the pelvis, as formed by the bones of the pubis and ischium, and as they are prolonged by the levatores ani muscles, &c. But these are points not now under review.

I thus have been endeavouring to maintain the synclitic movement of the child's head in cases of natural labour, as true, both theoretically and practically. I cannot insist upon its mathematical accuracy, for the ever-varying size of the child's head, and the degree of resistance it meets with from the os uteri and from the bones of the pelvis, which must influence continually its degree of flexion or extension, defy any attempts at mathematical accuracy. I would only repeat that the head passes more readily when it presents its cervico-bregmatic plane, and that the greater the resistance the more perfect will be the flexion, and the more exact will be the parallelism or synclitism of the equatorial plane of the head with the various planes of the pelvis and vagina.

If this fact be substantiated, its practical importance can hardly be estimated. This assertion needs no demonstration to any experienced accoucheur. If the great occipital extremity of the head descends, in a natural labour, in such a manner that the occipito-mental diameter always coincides with the axis of the obstetric canal, whether straight or curved, and that the cervico-bregmatic plane of the head, with its diameters of equal length, is parallel to the successive planes of the pelvis through which it passes, it results: That it is the great business of the accoucheur during the whole process of descent, to insure this parallelism by facilitating, during the first portion of the descent, the process of flexion of the head, and during the last, by facilitating its extension.

Hence, also, in all obstetric operations the same principle must regulate the hand of the practitioner. The blades of the forceps, for example, should always be applied as nearly as practicable in the direction of the occipito-mental diameter, and traction effort be made in the axis of the obstetric canal, inasmuch as then the longest diameter of the head will be coincident with the obstetric axis, and the cervico-bregmatic circumference will be parallel with the planes of the pelvis and vagina. This, as all experience demonstrates, is not only the most natural, but also the easiest mode for the transit of the head.

ART. III.—*Observations on Relapsing Fever, as it occurred in Philadelphia in the winter of* 1869 *and* 1870. By JOHN S. PARRY, M.D., one of the Attending Accoucheurs to the Philadelphia Hospital. (With two Diagrams.)

THE announcement made in the latter part of last year (Dr. Weber, *Medical Times and Gazette*, Dec. 19, 1869), that relapsing fever had again appeared in London, and was threatening to become epidemic there, could not but arouse the suspicion that it might cross the Atlantic, and spread throughout the commercial cities of our sea-coast. That this has been fully realized, we are already painfully aware, and it now remains for those who have had opportunities for studying the disease to trace, if possible, its rise and progress here. It is this, rather than to give a complete account of its clinical history, that I propose to do.

According to Dr. Flint, Sr. (*New York Medical Journal*, March, 1870), relapsing fever appeared in New York on or about the 14th of November, 1869. Previous to that time, however, several cases had been under the care of the writer in this city. The district in which it was first met, was in the eastern portion of the town; the square between Second and Third, and Arch and Race streets. This block is divided into four nearly equal parts, by Bread Street running north from Arch to Race, and Quarry Street running east from Second to Third Street. Connected with these were several very dark, narrow, ill-ventilated alleys, all the houses of which were crowded to overflowing with a poor Irish and German population—the former predominating. At the time the fever appeared Bread and Quarry Streets were both in a deplorable condition, having received for an indefinite period much of the garbage thrown out by their careless inhabitants.

The first case that occurred was a widow aged 23 years, living in a very narrow court running back from Quarry Street west of Bread. She was one of a family of seven persons who lived in a house having three rooms, each about twelve feet long and eleven feet wide, and with very low ceilings. These were upon separate stories, the second and third being occupied as bed-rooms. In the upper of these four persons slept, the patient in question, a grown-up sister, and two brothers aged about ten and twelve respectively. The whole family appeared to be well fed, and, with a single exception, were rather more than ordinarily fleshy. From personal inspection, we know that during their illness the table was always plentifully supplied with the necessaries of life. The house was moderately clean, and the family well clothed. This woman sickened on the 8th of September, 1869, and was placed under our care on the 10th of the month. So far as we have heard it was the first case of relapsing fever which occurred in Philadelphia during the present epidemic. A short summary of the symptoms may be given to establish the identity of the disease.

Previous to September 8th, she had been perfectly well, and working in a neighbouring factory. On the morning of that day she was suddenly seized with a chill followed by a high fever, nausea, vomiting, and epigastric tenderness. When she came under our care, two days afterwards, the symptoms were well marked. Her face was flushed, skin everywhere dry and pungently hot, with an axillary temperature of 105.25° Fah. There was a heavily furred tongue, which afterwards cleaned from the centre, and later became dry and very sore; epigastric tenderness well marked, extending over into both hypochondriac regions. Spleen and liver both enlarged, vertical diameter of the former about seven inches, while the latter projected nearly two fingers' breadth below the false ribs; both were exceedingly tender upon pressure. There was complete anorexia, bowels obstinately constipated. Vomiting still continued, the ejected matters consisting of mucus and a bright green sour fluid. No tympany, nor could we find any abdominal eruption. At this time there was no jaundice. Pulse exceedingly rapid, varying from 125 to 140 from the third to the fifth day of the disease, full and thrilling; rapidity of the pulse out of all proportion to the prostration, for though this was considerable, she still attempted to sit up. She complained much of restlessness, pains in the back and limbs, headache, which was very severe, and both frontal and occipital. There was almost complete insomnia, but delirium and stupor were entirely absent.

She continued in this condition until the evening of the fifth day of the disease, when we left her apparently worse than she had been at all, and being really alarmed about her, ready to give an unfavourable prognosis; the disease being supposed to be remittent fever, and quinia had produced no effect. Towards morning, however, she fell asleep, and awoke about four hours afterwards in a profuse perspiration; and when she was seen in the morning, her clothing and bed were literally drenched. Skin now cool, pale; pulse fallen to 70, small and weak. The prostration was great, though in a few days it grew less, and at the end of a week she was even able to sit up a little, but was so giddy that she could not walk.

On the fourteenth day she fell sick again as suddenly as before, the same symptoms following with slight jaundice in addition coming on the fifteenth day. This paroxysm continued four days, and then remitted as suddenly as before, to reappear again on the twenty-eighth day. The second relapse was followed by most profound depression, which prevented her leaving her bed until the termination of the sixth week of the disease.

The second patient, the mother of the first, fell sick on the 13th of September, having been almost constantly with her daughter after her illness began, and occupying the same bed with her at night.

The third patient came under our notice on the 16th of the same month. She was one of a small but very poor family living in a narrow court running east from Bread Street above Arch. The house was small and imperfectly ventilated, but not overcrowded. Her food had for some time been of the coarsest kind, and it may be deficient in quantity, but this she denied.

September 27th, a near neighbour of this woman was taken sick with the same symptoms. Seven days before she had visited the third patient. This family occupied a somewhat larger house than any of the others, living in two rooms only. The whole family consisting of husband, wife, and five children, occupying a common sleeping room on the second floor, which in regard to size was totally inadequate to their wants.

Two cases occurred in this house, the other being a child four years old, who slept with his mother during her illness. This family was both well clothed and well fed, and they presented no evidences whatever of want of food.

On the first of December, we were called to see another family on the west side of Bread Street above Arch. In this there were two cases. On the 25th of the same month, the first case occurred outside of this locality; a woman in Allison Place, a narrow court off Front Street above Arch. After this the area over which the disease spread. as is well known, was very wide. As early as the middle of December, we saw two well-marked examples of the disease in the western part of the city.

We have thus located the first eight cases of this disease, in the order of their occurrence. Every attempt to trace their origin has failed. The first patient had been working in a neighbouring factory, and had not been where any one was sick. None of the operatives in the establishment had been ill. She was born in this country, though her parents were Irish. They had had no communication with any one coming from the old country.

It is equally impossible to trace the disease in the third case to contagion. There certainly was no direct communication between her and the first family, though they lived scarcely a half square apart.

Etiology.—The surroundings of these patients have been described in order to draw attention to the etiology of relapsing fever. It is generally supposed to have its origin in want of food. And the common names of "famine fever" and "hunger pest" express both the popular and professional opinion on this subject. Dr. Murchison (*Treatise on Continued Fevers*, p. 313) says it is probable that "the poison of typhus is generated by overcrowding, and destitution favours its extensive propagation; that of relapsing fever is more intimately connected with, if it is not generated by destitution, and is propagated by overcrowding." Dr. Begbie (Reynolds, *Syst. of Medicine*, vol. i. page 647), Aitken (*Pract. of Medicine*, vol. i. p. 441, Phila., 1866), and Dr. Flint, Sr. (*Theory and Practice of Medicine*), express the same view (1st edition, p. 733), and the latter reiterates it again in 1870, in the following language: "Destitution, deprivations, and especially deficient alimentation, are powerful predisposing causes." (*New York Medical Journal*, March, 1870.) Dr. Clymer, who described the first recorded cases of this disease in this country, adds his testimony to that already cited.

At the outbreak of the epidemic we shared the common view, and we were consequently much surprised to find that, with a single exception, the persons affected appeared to be well fed, and were even fat. In only one instance was want of food suspected, and in this case even it was denied. Every patient that came under our care was able to obtain a plentiful supply of milk, meat, eggs, or any ordinary article of diet that was ordered. In our experience, again, the disorder did not occur among the "vagrant and unemployed," but the heads of the afflicted families held their ordinary positions in the neighbouring stores and factories, many of which they had occupied for years. Nor is there any obvious reason why want to the extent of starvation should afflict the labouring classes in this country at the present time, for the price of labour is high, while the crops of last year were good, and in 1869 the price of breadstuffs was low. Potatoes, an article largely consumed by our Irish population, have been very plenty during the past winter and the preceding summer, nor do we know that meats were at that time more difficult to procure, whatever may have been the case during the last few months.[1]

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[1] From January to November, 1868, flour of a good grade sold for $11 and $12 per barrel, and from November, 1868, to February, 1869, for $10 and $11. In

We therefore searched for another and more powerful exciting cause of this fever than starvation, and soon noticed that there was a striking similarity in the surroundings of all the patients. No matter how well fed they might be, the houses in which they lived were all overcrowded, and this is particularly true of their sleeping apartments. In every case the ceilings were low, and it was no uncommon thing to find four or five persons occupying a small room eleven by fifteen feet, and eight feet high, at night. Further, there was no means of ventilation, the only window being, in many instances, small, containing nine panes six by eight or eight by ten, only one-third of which—the lower sash—could be opened. At most there were but two of this kind. Is it any wonder that disease should spring up under such circumstances? It is only astonishing that some worse scourge has not visited them long since. The sickening odour which met us as we entered some of these rooms cannot be forgotten.

It is with diffidence that we oppose the opinion that relapsing fever is largely due to starvation, as the statement is supported by such high authorities; but we cannot help believing the conviction which is now being urged, that a much more potent cause here was overcrowding, and the notoriously small breathing space allotted to each individual in the houses of the poor.

It is with pleasure that we notice, just as this article is going to press, that Dr. Muirhead (*Edinburgh Medical Journal*, July, 1870) advances the same views, and denies the potency of starvation as the cause of this fever. In his cases he found the breathing space allotted to each individual to vary from 240 to 400 cubic feet, while we know of no house in which the disease occurred, unless it was very evident that it was due to contagion, where there was over 450 cubic feet for each in their sleeping apartments, and in the majority it was 300 feet or less. Dr. Bennett also states (*Ed. Med. Journ.*, Aug. 1870, p. 162) that he "had charge of the Fever Hospital in 1846, when relapsing fever largely prevailed, and he could say that in not one case had it been traceable to starvation."

Contagion.—That relapsing fever is contagious can hardly be doubted. It has already been stated that in several cases the nurses and patients occupied the same bed at night. This was allowed because the disease was at that time thought to be remittent fever. In no instance of this kind did the nurse escape, while other members of the same family did not so surely suffer. If the apartment occupied by persons sick with it be of good size and well ventilated, it appeared that they might be visited with impunity. Patients may be admitted to a healthy family among the better classes, or into the wards of a well-ventilated hospital, without propagating the disease. In April last a girl, æt. 12, entered the children's asylum

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July, 1869, it was worth from $6 to $7, and so continued until February, 1870, when it fell to $5 and $6.

of the Philadelphia Hospital in the primary paroxysm. No attempt was made at isolation. A few weeks after her recovery two cases, a brother and sister, were admitted. In neither instance did the disease spread. The ward in which they lay was large and not crowded.

On the other hand, small breathing space and imperfect ventilation are followed by rapid spread of the fever, so that the whole family may have to be transported to a hospital in order to be nursed.

The following striking example of contagion came under our notice in the latter part of March last:—

A man left Philadelphia about February 1st, remaining for the two months in Western Pennsylvania. During his absence his health was good, and he had no known opportunity to take any disease. On returning home he spent several days with a friend in the second paroxysm of relapsing fever. He then went to his brother's, and ten days after reaching the city was seized with mild relapsing fever, and was sick five days. In about two weeks his brother's wife was taken, and had it severely. Subsequently another case occurred in the same family. During the remission this same man went to his brother-in-law's in a distant portion of the city. Here he had the relapse which lasted four days. This family consisted of six persons, four of whom were children. Only one of the six, the mother, escaped. It is worthy of note that the youngest children, who were most exposed by being with their uncle, and who were aged, respectively, four and six years, were taken first, on the eleventh and twelfth days after their relative reached the house. The older ones, who were nearly grown up, and engaged at work during the day, did not take sick until the younger ones were in the relapse, while the father remained well until all the others had recovered.

The disease may be carried by fomites. This is very forcibly illustrated by the history of the affection in a family placed in my care by my friend Dr. Edward W. Watson, during his temporary absence from the city. He has very kindly allowed me to use the statements which are about to be related :—

The family lived in a healthy neighbourhood, and were in comfortable circumstances. One of the sons was employed in a neighbouring manufactory where they procured a new hand who, it was afterward learned, had just come from the Philadelphia Hospital, where he had been ill with relapsing fever. From him Mr. M. purchased a pair of overalls and carried them home. On the 19th of April one of the sisters washed these, and she was taken ill with the fever on May 1st, making the period of incubation twelve days. At the same time this garment was handled by two other sisters, who fell sick on the 2d and 3d of May respectively.

Dr. Watson relates, and allows to be used, another equally striking example.

A woman learned through the newspapers that her husband had been picked up ill in the streets, and taken to the Philadelphia Hospital. He had not been at home for some time before. On the 21st or 22d of March, she sent a friend to the institution to learn his condition. She found him dead, it was stated from relapsing fever. She went to the dead-room and identified his body, which was not brought away for burial. She carried his clothing to her own home and placed it in a room next to her children's bed-room, with an open door between them. Four cases of the disease afterwards occurred in the family. On April 7th a boy was taken, April 25th a girl, April 29th another girl, and on May 3d her husband. There had been no cases of the disease in the neighbourhood before that time, so far as could be ascertained. There certainly had been none in that square.

Nativity, Age, and Sex.—In not a single instance did we meet with the affection among our native population. All the sufferers, with two exceptions, were Irish, or born of Irish parents. The exceptions were Germans living in the infected districts. We met the disease in four families who were in comfortable circumstances, and in three of these it could be traced to contagion.

No age was exempt. It affects young and old alike. More females than males were attacked, in the proportion of two to one. The probable cause of this difference is to be found in the fact that men were less exposed to the causes of the disease, especially overcrowding and contagion, than women.

Origin in Philadelphia.—We feel that the information in our possession is not sufficient to warrant an opinion in regard to this matter. It is at least certain that it appeared in distant parts of the city about the same time, having broken out near the Schuylkill River early in October, 1869. We vainly endeavoured to trace some means by which it had been imported from Great Britain directly, or brought here from New York. The latter is rendered improbable from the statement of Dr. A. Clark (*Clinical Lectures on Relapsing Fever*, New York Medical Record, March, 1870), that the earliest case which was recognized in that city was admitted to the Bellevue Hospital November 6th, 1869, nearly two months after the disease came under the notice of the writer in this city.

Dr. Harris, the Sanitary Superintendent, New York, believes the fever was imported there, and did not arise, *de novo* (*Medical Record*, March 1st, 1870.)

Period of Incubation.—From what has been said under the head of contagion, this is probably from seven to fifteen days.

Symptoms.—It is not our purpose to give a detailed account of the clinical history of relapsing fever, but a brief summary of phenomena of the thirty-seven cases which have been under our care, may be important.

The invasion was almost always sudden, the patient often being able to fix the time of commencement of the disease with the utmost precision. In several cases this feature was particularly noticeable; one woman telling us that she arose in the morning perfectly well, ate her breakfast as usual, and did not think of being unwell until ten o'clock; when, during her return from market, she was suddenly seized with giddness, which was rapidly followed by intense headache, and a sharp pain in the epigastrium.

Before she could reach home, these were succeeded by a chill, accompanied with vomiting.

In adults, the chill, which is not usually very severe, was frequently the initial symptom. It was not unusual for it to be preceded by the symptoms mentioned above. In one case, the chill was repeated at the same hour on three successive days. In children under seven years, the disease was ushered in by, or at least the symptom which first attracted the attention of the mother was, profuse vomiting. In only two cases were we able to obtain the history of premonitory symptoms of more than a few hours' duration. These were nausea, loss of appetite, giddiness, headache, debility, and pain in the back and limbs, lasting for two or three days before the attack began.

This cold stage was rapidly followed by intense headache, high fever, restlessness, insomnia, pain in the back and limbs, with a very frequent pulse. The digestive system was much disturbed, with furred tongue, epigastric pain, and nausea and vomiting. These all persisted as in previous epidemics, until the fifth, seventh, or ninth day, when they remitted with surprising suddenness, to be repeated again at the end of the second week of the disease.

Studying the symptoms separately, we obtained the following result:—

Physiognomy.—During the initial chill there was nothing peculiar in the expression. After the fever set in the face was usually flushed, the colour being red or purplish. In one case, uncomplicated, the redness was distinctly circumscribed and limited to one side. Dulness of expression, or the stupid appearance common in the continued fevers, was not present at all. During the remission and after the second relapse, the face was frequently very pale, and sometimes had a puffy, velvety look, as though the skin had been much thickened and softened at the same time. This was especially noticeable during the earlier stages of the epidemic, when the sweating was more profuse and continued longer than it did later. There was but little conjunctival congestion. The point which was most striking in connection with the eyes, was the alterations of the pupils. At the commencement of the febrile stages, these were normal, or rather contracted, and they remained so until just before or immediately after the crisis, when they became widely dilated, even in a well-lighted room. This condition continued for three or four days, and then disappeared. In one case in which this was particularly noticeable, the dilatation occurred about twelve hours before the remission, and continued for seven days when the relapse supervened. The pupils then contracted, and on the seventeenth day of the disease they were noted as normal. During the night the temperature fell seven degrees, with the usual changes accompanying it, and in the morning the pupils are recorded as "very much dilated."

We are unable to make any positive statements in regard to the constancy of this symptom, but after our attention was attracted by it we found it present in one-half the cases.

Skin.—The condition of the skin varied somewhat with the stages of the epidemic. It was always excessively and pungently hot during the paroxysms. Until the latter part of February last it was always very dry, and we never noticed any perspiration until the crisis came on. During the spring and summer, however, perspiration upon the face, arms, and especially the hands, was frequently noticed without diminishing the heat or affording any relief to the patients. When the temperature and pulse fell the skin became bathed in perspiration, which sometimes literally drenched the patients. We have frequently seen them with their hands drawn like a washerwoman's.

The first cases which we treated sweat much more profusely than those who were sick later in the season. After the second crisis in the first seven cases the secretion did not cease, but continued, especially at night, for two or three weeks, and was most profuse and very exhausting. The appearance of these sweats at the crises was frequently attended with a copious eruption of sudamina both after the primary and secondary paroxysm. In no case was any other eruption seen excepting in a delicate girl, who had numerous small spots of purpura appearing in the first stage of the disease, and chiefly confined to the lower extremities.

Digestive System.—In one particular some of the earlier cases differed from those usually described, and from those seen later in the epidemic. During the primary paroxysm, the tongue was covered with a white or yellowish-white fur varying in thickness but usually well marked. This coating in most cases covered the whole organ, and presented no peculiar appearance, but on the third or fourth day the tip and edges became red. During the remission it partly cleaned and in the relapse totally changed its characters. There first appeared a red smooth streak down the centre, which rapidly became dry in some cases, in others remained moist. If the former, a portion remained upon either side, covered with a simple white fur, the lines separating this from the middle portion frequently being very sharply defined. In other cases the whole tongue speedily became clean, the coating with the epithelium disappearing from the centre, leaving it of a bright red colour with enlarged papillæ, very much like the "strawberry tongue" of scarlatina. Immediately after cleaning it became fissured, the cracks traversing its short diameter with a deep central fissure running down the organ in a few cases. These were very painful, giving rise to loud complaints, and indeed in some cases it was the chief source of discomfort. When well marked the patient dreaded taking anything, even so much as a drink of water, into the mouth, on account of the intolerable smarting produced. As this appearance of the tongue was present in the first five cases of the disease seen by the writer, it was supposed to be characteristic of the malady, but subsequent observation disproved this, and led to the conclusion that there is nothing characteristic about the appearance of the tongue in relapsing fever. As the epidemic progressed and became milder, or at least the cases coming under our care were not so severe, there was simply redness and dryness of the middle of the organ, and still later was covered with a white fur with reddish and clean tip and edges. The clear surface at the point was frequently triangular in outline, its edges sometimes being sharply marked. These characters do not always present themselves until the third or fourth day of the disease, and it is the author's belief usually do not. His attention was not specially directed to the point until comparatively recently, when, of five cases seen on the first or second day, all the tongues were furred to the tip and edges, while in four of them these parts became red on the third or fourth day. The appearances of the tongue, described as occurring in the early part of the epidemic, have now totally disappeared. In walking through the medical wards of the Philadelphia Hospital, and looking at the patients under the care of our colleagues, we do not remember to have seen a single example of it. All the patients in whom it was present had a prolonged convalescence, and after they were able to return to their work they complained of dyspeptic symptoms and pain in the stomach after taking food. In no case in which the smooth and later fissured tongue was present was the patient able to leave the bed under six weeks from the commencement of the disease, and several were confined to their rooms for some time longer. It was present in seven out of thirty-seven cases.

There was in all the cases more or less vomiting during the early part of the primary attack, and in nearly all in the relapse. It usually subsided after two or three days, except in the earlier cases. In only two instances did it become a serious symptom, and in both of these there was the smooth fissured tongue that has been described. After the stomach had been emptied the ejected matters consisted chiefly of mucus and bile, and were of a bright green colour. There was anorexia in the primary and secondary attacks, the appetite returning in the interval; however, the patients would usually drink large quantities of milk, which was partly due to the thirst of which they always complained. Only once did we meet with the voracious appetite which Dr. Murchison states is sometimes present.

The bowels were in all the cases constipated during the primary attack and the remission. The first patient had some diarrhœa during the relapse, but it occurred after the abuse of purgative medicine. It was not at all severe, and ceased spontaneously at the end of four days. In another there was some diarrhœa during the second remission and the second relapse, though the patient was taking a considerable quantity of opium at the time. The stools, so far as they were seen, contained bile, and were dark and very offensive. In no case was there any meteorism or abdominal tenderness other than that mentioned as existing over the liver and spleen, and in the epigastrium.

In four of the thirty-seven cases there was jaundice, three of which were females and one male. In two it appeared in the primary and in two in the secondary paroxysm. Of the former it occurred in one on the fourth day of the disease and the other on the fifth, disappearing so as to be scarcely noticeable four or five days after its occurrence. In one of the second class it made its appearance on the second day of the relapse, and was not well marked. In the remaining instance our record does not state the exact period of its onset, but it was early in the relapse. In neither of these was the jaundice as severe as in those in which it made its appearance in the original attack. One of these, a female, became suddenly and deeply jaundiced on the fourth day of the disease, and on the fifth she had well-developed yellow vision lasting for the ensuing three days, though on the last it was less marked than before. One patient, *not jaundiced*, also complained that everything white or light in colour appeared greenish-yellow to her.

In all the cases there was the usual epigastric tenderness, with nausea and vomiting in the early part or throughout the whole of the primary paroxysm. They were as uniformly present in the relapse, and in two cases the latter became a serious symptom. The tenderness varied in degree, but was usually well developed. It came on early, being always more or less perceptible at the end of twenty-four hours, and in one person whom we saw in the initial chill it was well marked.

In the first cases this tenderness was very great, continuing until after the relapse, though growing less in the remission. As the epidemic progressed we saw the tenderness totally disappear in several cases during the paroxysm, while in most others it continued, though much diminished during the whole attack. In the relapse it was always augmented again. In very few cases, indeed, if any, do we see the tenderness confined to the epigastrium, but it almost always extends over into either hypochondriac region. The degree of tenderness was often different upon the two sides, sometimes most on the right, at others on the left. Throughout the whole course of the epidemic we found hepatic as frequent as splenic tenderness.

In all the cases there was enlargement of the liver and spleen. We have seen the liver project three inches below the false ribs, and become exceedingly tender, so that it was examined with difficulty. In this case the earliest symptom was a sharp pain in the epigastrium preceding the chill about two hours, and when the latter appeared there was considerable tenderness. This shows at least that these organic alterations occur very early in the disease, and that they sometimes accompany, if they do not precede, the chill.

Nervous System.—During the primary paroxysm there was always headache, often very intense, usually distinctly frontal, sometimes both frontal and occipital. The senses of sound and sight were in one case morbidly acute, but in only one case was there any delirium. This was in a young girl on the day after her removal to the hospital, which occurred in the crisis of the relapse. It was easily controlled, and lasted but one night. Nor was there any of the stupor, subsultus, or other nervous symptoms so common in typhoid diseases. Insomnia was marked, and the subject of constant complaint, especially in the early portion of the epidemic. Night after night would pass without a single hour of sleep in the early cases, and all the remedies employed failed to procure it. These statements not only apply to the primary paroxysm, but also to the relapse, the remission, and to the period of convalescence. After the 1st of January, however, this, with other symptoms, became more mild, and was easily controlled by remedies, but anterior to that time it was one of the most fruitful sources of complaint.

Severe pain in the back and joints was almost always present, both during the primary paroxysm and the relapse. It continued in many cases through the remission, when it was apt to be more distinctly articular than during the febrile stages. In four persons it was more in the remission than at any other time. In one case, seen shortly after the primary crisis for the first time, the pain was so definitely located in the joints, especially the knees, shoulders, and elbows, that we suspected rheumatism for several days, and the diagnosis was strengthened by the fact that there was slight swelling of the knees without redness, but with some tenderness on pressure. During the remission and convalescence we frequently noticed loss of power in the extremities. In the earlier cases this was attributed to the joint trouble, but subsequent observation showed that this was not the real cause, a view which is supported by a case which has just passed through the relapse as this is written. During the remission she was much troubled by pain in the joints and back. These were diminished during the relapse, which lasted four days, and entirely disappeared with the second fall of temperature on the nineteenth day. On the twenty-first day, however, she was much alarmed at finding sensation and motion almost destroyed in both the arms and legs. It was with the utmost difficulty that the extremities could be moved at all, and flexion and extension were impossible. In a week both had returned. A delicate girl in her fifteenth year had almost entire motor paralysis of the lower extremities, with deficient sensation coming on twenty-four hours after the end of the second paroxysm. In addition to this there was complete paralysis of the flexor muscles of the right forearm, without any affection of the extensors. At the end of ten days the power began to improve, and in two weeks was perfectly restored. These, of course, were extreme cases. In their minor forms these paralyses were not uncommon, and occurred alike in males and females. Numbness of the extremities was much more frequent than diminution of power, and usually occurred after the second fall of temperature.

Local paralysis has already been mentioned (Reynolds's *System of Medicine*, vol. i. p. 651) as complicating relapsing fever. Dr. Cormack has spoken of palsy of the deltoid muscles in particular.

In several cases the patients complained of formication during convalescence. In one man this was attended with some hyperæsthesia of the skin of the lower extremities, and with severe pain when the muscles were firmly grasped by the hands. This muscular soreness continued after the increased sensibility had disappeared, and was more or less troublesome for ten days after he had returned to his work.

There was always more or less prostration, but this did not compare in severity with that which attends typhus and typhoid fevers. The patients usually took to bed at once; but, except in the first cases, they were never absolutely unable to arise to attend to the calls of nature. They complained much more of giddiness than debility. This continued during the remission, and often prevented locomotion. It was not uncommon for them to say that they could return to their labours if it were not for this, and beg to have it relieved.

Pulse and Organs of Circulation.—The characters of the pulse were very striking. It always rose with great rapidity. In one instance, just at the close of the initial chill, it was 100. Twenty-four hours later, it had reached 136. The greatest rapidity observed was 152, occurring on the evening of the fourth day of the primary paroxysm, and just preceding the crisis. The patient was a female æt. 18. The rapidity was out of all proportion to the prostration of the patient. It was usual for it to reach 130 or 140, and we never saw it below 110, during either of the febrile stages, when it was generally full, thrilling, and not very easily compressed. It may become more rapid just before the temperature falls, and with all the other symptoms appears more alarming, or on the day previous to the crisis may fall 10 or 20 beats, and thus become the first evidence of the approaching change. A fall from 130 or 140 to 120 was several times observed without any corresponding alteration in temperature or dryness of surface, but it commonly heralded a rapid change at the end of twenty-four hours.

The rapid alterations of the symptoms are the most remarkable characters. A patient left on the previous evening with a raging fever, and a pulse of 140, may have next morning a cool skin and a pulse abnormally slow.

In a woman æt. 25, it was on the fifth day 140, on the sixth 120, and on the seventh 64, a difference of 56 beats in twenty-four hours. This was the slowest pulse met with in thirty-seven cases, but Dr. Muirhead (*Edinburgh Medical Journal*, July, 1870) furnishes a chart of the variations of the pulse in a case under his care, in which it fell to 44. Obermeier has seen it as low as 48. (*Glasgow Medical Journal*, November, 1869.)

The greatest alteration in frequency which was met with was in the case just alluded to. On the evening of the fourth day it was 152, and at the same time on the fifth, only 80, a difference of 72 beats. This was a greater variation than was noticed by Muirhead, 65 being the greatest fall in his cases.

The pulse was usually slowest on the first or second day of the remission, after which it became normal in frequency, and remained so until the relapse. During the interval it was feeble, irregular, intermittent and compressible. With the onset of the second paroxysm it rose almost as rapidly as it had fallen at the crisis and again became full and thrilling. We have seen it rise with the second fever from 80 to 144, in twenty-four hours, a difference of 64 beats. The pulse bears a definite relation to the changes in temperature, as will be at once seen by inspecting the chart of the latter.

In the febrile stages, the heart acts of course exceedingly rapidly. In thirteen cases a blowing murmur was heard over the base of the organ and in the great vessels. It was present alike in both paroxysms. During the interval, and especially immediately after the crisis, the first sound was very weak, and in five of the patients was almost inaudible, while the second sound was relatively intensified. During convalesence soft blowing murmurs, obviously due to anemia, were heard several times.

Hemorrhages are spoken of in the various accounts of the disease. Epistaxis was not unfrequent, though by no means constant. It was oftener present in children than adults, and usually occurred during the febrile stages. In one patient, a boy aged 7 years, admitted to the children's Asylum of the Philadelphia Hospital, it became very serious, the bleeding being so free as to endanger his life. It was only arrested by plugging the nares. In this case it occurred during the remission.

In two women in whom the menses came on during the progress of the fever, the flow was very profuse. Another one who had suffered from amenorrhœa for four months began to flow shortly after the disorder set in, and the discharge was much more copious than usual. In no case did we meet with relapsing fever in a pregnant woman.

Temperature.—Any one familiar with the disease can diagnose relapsing fever by looking at the temperature chart. As a rule the heat rises quickly, reaching 104° or 105° on the second day, when the cases usually come under observation, after which it may become still more elevated or the daily temperature, taken at the same time, may fluctuate slightly until immediately preceding the defervescence, when it, with all the symptoms, seem to reach their maximum. The patient at this time often appears to be in a most alarming condition, being restless, suffering from distressing headache, burning hot skin, and often with a pulse reaching

140 or more. In a few hours, however, the condition may totally change, the temperature falling below the normal, the skin becoming moist and cool, and the pulse slow. The greatest variation noticed in the cases made the basis of this article was ten and a half degrees. On the evening of the fourth day the mercury reached 106.5°, where it still remained the next evening; but on the evening of the sixth day it had fallen to 96°, the lowest noticed in any case. (See Diagram I.) In this case occurred the highest temperature met with in the initial paroxysm.

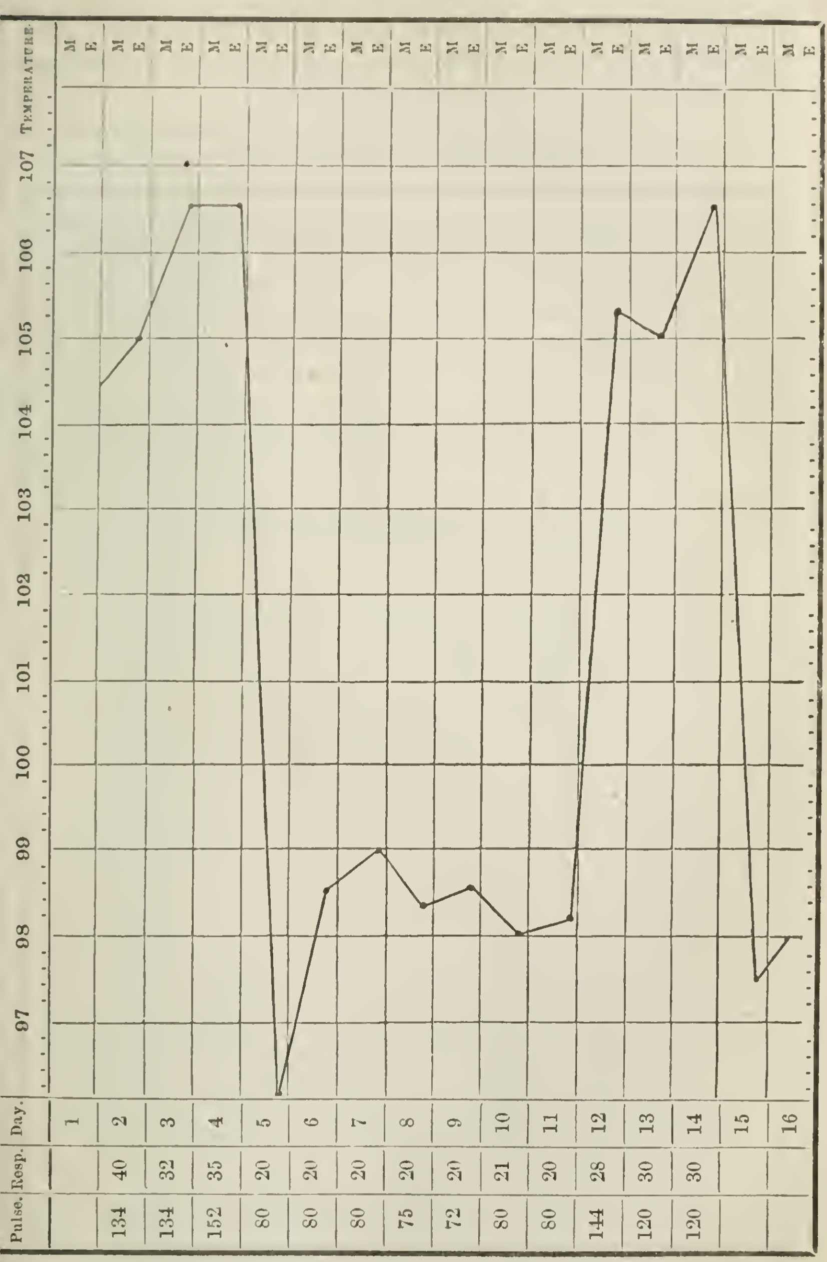
When the relapse sets in the heat again increases as rapidly as it has fallen at the beginning of the intermission, rising from the normal to 104°, 105° or even higher in less than twenty-four hours. The second defervescence is as rapid as the first, and as the second elevation of temperature. During the intermission the body heat is less than natural, especially during the first day. On the second day it is very apt to rise nearly to the normal standard, where it may remain, fluctuating slightly, until the relapse sets in·

The highest temperature may be reached in the first or second paroxysm· In the primary attack the maximum noticed was 106.5° Fah., on the fourth and fifth days. In the second paroxysm the point reached was 108°, the highest in any case. This occurred in a female, on the sixth day of the disease, and third of the relapse.

The variations of temperature and pulse in this patient were as follows:—

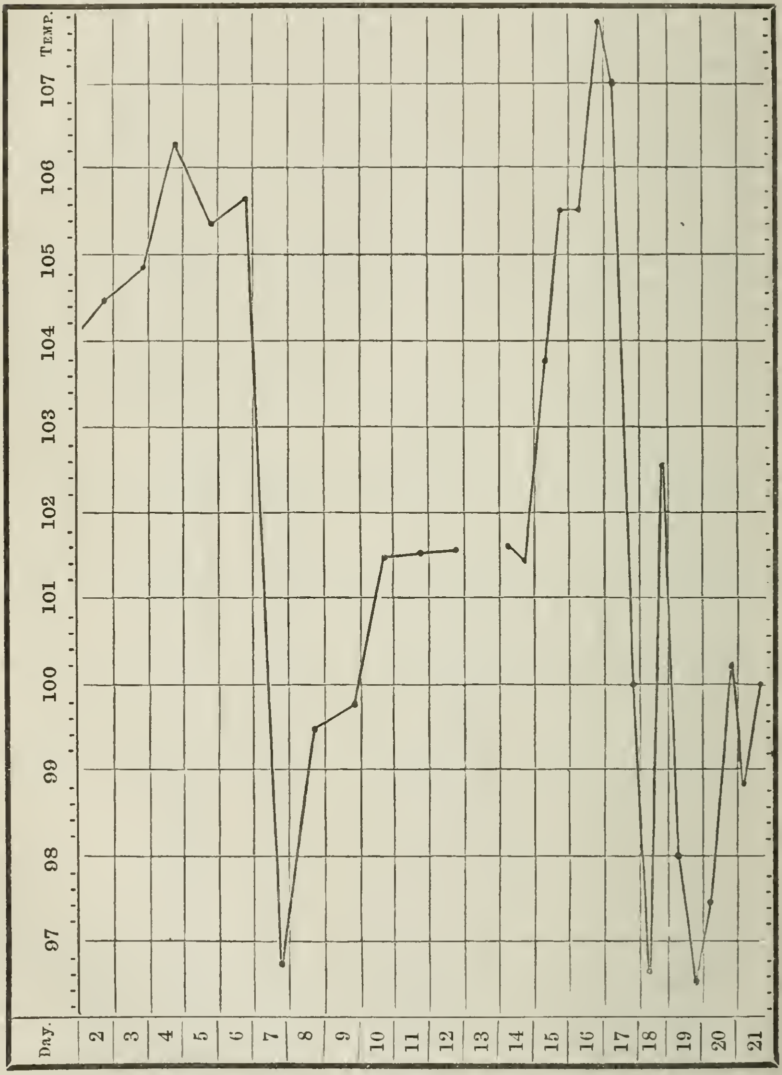
DAY.	PULSE.		RESPIRATION.		TEMPERATURE.	
	Morning.	Evening.	Morning.	Evening.	Morning.	Evening.
2	...	136	...	...	...	104.5
3	...	136	...	...	...	104.75
4	...	140	...	36	...	106.5
5	...	140	...	24	...	105.25
6	...	120	...	36	...	105.75
7	...	64	...	20	...	96.75
8	...	80	...	24	...	99.5
9	...	86	...	20	...	99.75
10	...	80	...	20	...	101.5
11	...	80	...	20	...	101.5
12	...	80	...	21	...	101.5
14	81	102	18	28	101.5	101.25
15	112	126	27	26	103.75	105.5
16	130	135	22	23	105.5	108
17	126	90	31	30	107	100
18	81	120	21	24	96.75	102.5
19	81	98	18	19	98	96.5
20	84	83	18	20	97.5	100.25
21	102	90	24	23	98.75	100
22	96	90	21	24	100.25	100
23	84	90	20	24	99.25	100
24	93	90	24	24	99.25	100
25	90	...	18	...	101.25	

DIAGRAM I. FEMALE, aged 18.



Of six cases seen on the second day and observed carefully the maximum temperature occurred in the primary paroxysm in two, in the relapse in three, though in one of the latter the difference was only two fifths of a degree. In one it was alike in the original attack and the relapse. The greatest difference in the maximum of the two paroxysms was one and three-fifths of a degree. (See Diagram II.)

DIAGRAM II. FEMALE, age 25.



The pulse and respirations obey the same laws as the temperature in their variations, rising rapidly with it, in the first instance, and falling as suddenly in the second even below the normal.

The temperature charts accompanying this paper are from uncomplicated cases. No. 1 was a very severe case, and shows very clearly the typical line of temperature, with its rapid falls and elevations. The patient which gave the second diagram and the preceding record was remarkably ill. The crisis was as abrupt as usual, but the body heat began to increase immediately after the fall, and continued to rise without any complication for three days, after which it remained stationary at about 101.5° until the relapse on the fifteenth day. It is to be regretted that we could not make two observations daily, but outside of hospitals this is often impossible, and it was so here. It is possible that the morning temperature was nearly normal, while that at 6 P. M. was as noted. After her admission to the Philadelphia Hospital the observations were made twice daily, and I am indebted to my colleague, Dr. Rhoads, for the privilege of using the record, and to my friend, Dr. C. H. Bogman, then acting as Resident Physician, for the very careful manner in which it was made.

The following table is chiefly interesting, from the relapse lasting but twenty-four hours. The patient was a boy five years old:—

DAY OF DISEASE.	PULSE.	RESPIRATION.	TEMPERATURE.
3	136	40	106
4	130	40	105.5
5	140	40	105
6	120	45	105.5
7	80	30	99.25
8	75	28	98.5
9	72	24	98.25
10	70	24	98.5
11	75	20	98.5
12	70	...	99
13	70	...	98.25
14	120	35	104.5
15	95	20	99
16	70	20	98.5

Urine.—Unfortunately the urine could not be subjected to the proper examination when these cases were under observation. It underwent important alterations in quantity, especially in the first patients seen. In all, however, it was diminished in amount and darkened in colour during the febrile stages, increasing in quantity and becoming lighter in colour during the remission. In four cases the secretion was almost suppressed. This occurred after the relapse, when the patients were exceedingly weak, and sweating most profusely. Two for several days in succession did not void more than an ounce in twenty-four hours, yet there were no evidences of retention of urea, nor did the perspiration have a urinous odour. In these, and only these, was the fluid tested for albumen and examined for tube casts. It contained none.

Relapses.—Only three cases had more than one relapse, and all of these but two, the second occurring on the twenty-eighth day of the disease. The uniformity in the period at which the relapse occurred struck us early in the study of the disease. The first in the majority of cases, as will be subsequently shown, happened on the fourteenth or fifteenth day, without regard to the duration of the primary paroxysm.

In several cases under our care during the prevalence of this epidemic, the symptoms of relapsing fever were well marked, but the disease terminated without any subsequent paroxysm. From these observations we are led to believe that in mild cases the disease may be arrested after having passed through the initial stage, or else that the relapse may be so mild as to escape notice unless the patient is very carefully observed.

This opinion is supported by a case in which the relapse lasted but one day, yet the difference between the temperature on the evening of the thirteenth and on the evening of the fourteenth day of the disease was $6\frac{1}{5}$.° In this instance we are confident that the relapse would have escaped notice had the child been less carefully watched.

Duration of Disease, and its Stages.—The whole duration of undoubted cases was never less than three weeks, with a single exception, a boy aged five years, in whom the relapse lasted but one day. The whole duration of the cases occurring before the first of January, was much greater than the same in those afterwards, the actual period in bed being on an average for five cases six weeks. One was not able to sit up until the end of the eighth week. In these patients the condition of tongue and gastric disturbance previously described, was accompanied with great debility and most profuse sweating.

After the commencement of the present year, when the symptoms were more mild, the average duration was about four weeks. In children under twelve years the disease made a shorter course, and was much milder in cases coming under our care. The longest duration was twenty-two days, the shortest fifteen. In this instance the child was apparently perfectly well from the ninth to the thirteenth day, and played as usual. On the fourteenth day the relapse occurred, lasting but twenty-four hours, and terminating as usual. During the afternoon of the sixteenth day he was playing in his room, and on the seventeenth had gone out as usual.

Duration of Stages.—The initial paroxysm lasted from four to eleven days, the latter occurring in a complicated case. In a majority of cases it terminated on an uneven day of the disease. This was true of twenty-four out of thirty-six cases. The following is the duration in twenty-five: In two, it lasted four days; in seven, five days; in two, six days; in ten, seven days; in two, nine days; and in only a single instance was it prolonged until the eleventh day. In more than half the cases, therefore, the primary attack terminated on the fifth or seventh day.

The relapse, in the majority of cases, occurred on the fourteenth or fifteenth day. In twenty-four cases it happened on the former in eight, and the latter in eleven. Of the remaining cases it occurred in one on the eleventh, two on the thirteenth, in one on the sixteenth, and another on the nineteenth day.

The duration of the relapse was almost always less than that of the primary paroxysm in the same case. In twenty-four cases it lasted, six days in one, five days in six, four days in one, three days in ten, two days in five, and one day in one. The second relapse ran a still shorter course. In two of the three cases in which a third paroxysm occurred, its duration was three days, and in one it lasted but one day.

Diagnosis.—The peculiar characters of the affection are so striking that the physician can have but little difficulty in detecting relapsing fever. The sudden onset, with rapid elevation of body heat, an exceedingly fast pulse, nausea, vomiting, epigastric and hypochondriac tenderness, with enlarged spleen and liver, serve to distinguish it when the patients first come under observation. The rapid fall of temperature and rate of pulse, with the relapse on the fourteenth or fifteenth day, make the diagnosis certain.

This, however, is not the chief difficulty. When the writer met the disease on the 10th of September, 1869, it was not known that relapsing fever had found its way to Philadelphia, and he is free to confess that he was at first unable to determine the true nature of the disorder. It was so obviously neither typhoid nor typhus fever that the question hardly needed discussion, and hence for some time it was thought to be a severe form of remittent fever, and treated as such.

Large doses of the alkaloids of cinchona given immediately before the primary crisis were thought to have influenced its production, and hence the error was confirmed at first, and it was only after the evident failure of these remedies either to shorten the primary paroxysm or to prevent the relapse, that it was concluded that we had to deal with a new or unusual fever. Thus the diagnosis of relapsing fever was made, by exclusion—if you please.

The two diseases are alike in the suddenness of onset, in the presence of nausea, epigastric tenderness, the splenic enlargement, and the occurrence of jaundice. In remittent fever, however, there is a daily diminution of temperature with corresponding fall of the pulse, such as is not met with in this disease.

Dr. E. L. Fox asserts (*Med. Times and Gaz.*, March 5th, 1870) that "morning remissions" in relapsing fever "are either absent altogether or very insignificant," as shown by actual thermometric observations. In remittent fever, this instrument would probably show a fall of temperature in the morning, even if there was no change in the pulse. Remittent fever follows a very different course if left to itself. There is no sudden change in the condition of the patient, such as is seen in this disease with a relapse at the end of the second week.

Complications.—The fever ran its course in the majority of instances without complication. In five cases, three males and two females, intercurrent pneumonia occurred. In three of these, it was noticed during the primary paroxysm and in two during the relapse. In one, a man aged 40, the pneumonia was double, and the right lung became gangrenous, yet the patient recovered.

Sequelæ.—The first patient we saw in the epidemic had mild ophthalmia in convalescence. Slight œdema of the feet was not uncommon in the worst cases after they left their beds. In the early part of the epidemic dyspepsia and flatulence were noticed.

Mortality.—All the patients recovered, though convalescence was often exceedingly slow.

Treatment.—In regard to this we have nothing new to offer. All that can be done is to carefully watch the patient and meet the indications as they arise. Experience has furnished us with no knowledge which would enable us to cut short the fever or prevent the relapse. In the early part of the epidemic, as the patients were thought to be suffering from remittent fever, large doses of cinchonia and quinia were administered. The rapid fall of temperature on the fifth or seventh day was at first supposed to be due to the remedy, which was then given in ʒss doses daily. The occurrence of this relapse misled us still further, as it is characteristic of malarial fevers to observe septenary periods in their recurrence. The daily quantity of the drug (cinchonia) was then doubled, but without any better result. Sulphate of quinia was then resorted to, first in ʒss and afterwards in ʒj doses in twenty-four hours, without any success, no matter whether taken before or in the relapse.

The preceding remarks in regard to the uselessness of quinia are totally at variance with the results reported to have followed its administration at St. Bartholomew's Hospital (*British Medical Journal*, February 26, 1870), where it was said to have prevented the relapse in the three cases admitted. Dr. Muirhead, criticizing the statement, suggests that the patients were admitted in the relapse, and not in the primary paroxysm. (*Edinburgh Medical Journal*, July, 1870.) This is the truth we have no doubt, or else they were not relapsing fever. The testimony in favour of the inefficacy of antiperiodic doses of quinia is so overwhelming that such a statement from such an honourable institution is astonishing.

This remedy was used thus in the first five patients, and it is exceedingly interesting to note that it did not increase the headache, and that in no case was there any ringing in the ears, or other symptoms of cinchonism. Two persons took ʒj of quinia in less than twelve hours, it being administered in three or four doses three hours apart. Even in these it produced no unpleasant effects.

The use of antiperiodics was now abandoned, and the mineral acids employed, ♏v of the strong muriatic being prescribed every two or three hours, either alone or combined with Huxham's tincture of cinchona. When profuse sweating made its appearance the aromatic sulphuric acid was sometimes substituted for the muriatic acid, and continued throughout the whole course of the disease. Neither appeared to do any real good. Dr. Flint, Senior (*New York Medical Journal*, March, 1870), suggests their use in this disease, but if we were to meet with it again we would not prescribe them with any great confidence.

In short, it seems as if the therapeutics of relapsing fever are almost entirely limited to the diminution of the excessive body heat, the prevention of complications, and the relief of a few special symptoms, as the insomnia and articular pains. Unfortunately there are few or no agents that influence the temperature permanently. Simple febrifuges, the ordinary effervescing mixture, and solution of acetate of ammonia, with cold sponging, are as good as anything. Depressing febrifuges of course must not be employed. Quinia in smaller doses than those previously mentioned does not affect the heat of the body. After the crisis has occurred, however, this agent is, we think, valuable to support the patient. After trying many drugs we got to using quinia with camphor during the remission and after the relapse. The doses prescribed were two or three grains of the former to three, four, or five of the latter every two or three hours. They were not administered because they were supposed to shorten or even materially modify the progress of the disorder, but because the patients usually bore spontaneous testimony to the fact that they relieved the sense of prostration, and tended to produce sleep. The remedies were well borne, and did not produce nausea.

Among the symptoms demanding relief are the insomnia and pains in the limbs and joints. During the early part of the epidemic these resisted all the narcotics which we employed. It seemed almost impossible to get the patients to sleep. Bromide of potassium, in doses varying from twenty to thirty grains, every two hours, had no other effect than to produce irritability of the stomach. Opium was not more successful. Several persons took three grains every two hours throughout the afternoon and night without producing any sleep. This was not only true of solid opium but also of its fluid preparations and its alkaloid morphia. The medicine did not even produce contraction of the pupil.

Dr. Frederick W. Lewis, who treated a number of cases of relapsing fever in the western portion of the city during the latter part of last and the commencement of this year, tells us that he noticed the same remarkable tolerance of opium and its preparations. The doses which he employed were even larger than those which have been mentioned. In truth, until after the middle of last January, it seemed as if all medicines had lost their influence in these cases. Purgatives acted very slowly, very imperfectly, or not at all. One woman took four compound cathartic pills in the evening; four pills containing ten grains of blue mass, twelve of compound extract of colocynth, and two of extract of hyoscyamus during the next day; on her own responsibility, nearly an ounce of salts the succeeding morning, and two Seidlitz powders in the evening, and then had only one small stool. It was with utmost difficulty that she could be prevented from taking afterwards a dose of senna and manna. This is by no means an isolated case in our experience.

These remarks, in regard to the tolerance of drugs, apply only to the cases treated in the early part of the epidemic. It was chiefly confined to those who suffered with the red fissured tongue, which has been described. As the epidemic progressed and the symptoms became less severe we had no difficulty in procuring sleep and quieting pain. After February 1st ʒiij, of liq. morph. sulph., frequently gave relief and a good night of sleep. If it failed, a second dose of ʒj or ij, at the end of two or three hours, was nearly always successful. While on this subject it might not be amiss to say that where opium failed belladonna and hyoscyamus were both tried, but with no better success.

Stimulants were very sparingly prescribed. In only two cases were they given in any quantity, and they were complicated with pneumonia. The chief reliance was placed upon a plentiful supply of beef-tea and milk, especially the latter, which was usually taken without difficulty. Good feeding is, we believe, the most important element in the treatment.

As has already been stated, no remedy was found to prevent the relapse. Arsenic was administered in several cases in large doses. It did no good whatever. In one it quickly produced œdema of the eyelids, but the relapse occurred two days afterwards, and while she was taking the medicine in smaller doses. It was not well tolerated, as it produced irritability of the stomach. The sulphites and hyposulphites were then tried, with the same results, but without affecting the digestive organs seriously. As a last resort we tried the preparations of chlorine, at the suggestion of Dr. Ludlow, but the disease still ran its course with unabated violence.

1513 Arch Street, Philadelphia, July 1st, 1870.

ART. IV.—*Meckel's Ganglion, and the propriety of its removal for the relief of Neuralgia of the Second Branch of the Fifth Pair of Nerves.*

By P. S. CONNER, M. D., Prof. of Surgical Anatomy in the Medical College of Ohio.

IN Dr. Carnochan's well-known report of the cure of three cases of neuralgia of the second branch of the fifth pair by exsection of the superior maxillary trunk,[1] occurs the following sentence:—

> "I believe that, in such aggravated cases of neuralgia, the key of the operation is *the removal of the ganglion of Meckel, or its insulation from the encephalon.* Where even a large portion of the trunk of the second branch of the fifth pair has been simply exsected from the infra-orbital canal, the ganglion of Meckel continues to provide to a great extent the nervous ramifications which will still maintain and keep up the diversified neuralgic pains. Besides, the ganglion of Meckel, being composed of *gray matter, must play an important part as a generator of nervous power,* of which, like a galvanic battery, it affords a continual supply; while the branches of the ganglion, under the influence of the diseased trunk, serve as conductors of the accumulated morbid nervous sensibility."

The "Carnochan operation" (using this expression to denote the exsection in general, without reference to the particular method of operating) has been at least thirteen times performed, and several of the operators have evidently considered Meckel's ganglion the objective point to be reached and the important part to be removed. In view of the magnitude of the operation and its claimed curative effect, it is worth while to determine, if possible, whether or not the removal of Meckel's ganglion *is* the "key of the operation."

To do this the anatomy and physiology of the parts involved, and the immediate and ultimate results of the experimental and surgical ablations of the ganglion must be considered.

Shortly after the superior maxillary nerve has passed through the foramen rotundum, and has given off its subcutaneous malar branch, it divides into the infra-orbital and spheno-palatine (otherwise known as the pterygo-palatine, and by Prevost styled naso-palatine) nerves. The spheno-palatine division may be only a single trunk, more commonly is made up of two, three, or more fillets (the spheno-palatine plexus of Luschka), that enter the "anterior broader portion" of Meckel's ganglion, and furnish unquestionably its *sensitive* root-fibres. Into the posterior part of the ganglion, where the gray ganglionic substance is most abundant, there enter by a common trunk (the Vidian nerve) the *motor* and *sympathetic* roots. By the older anatomists and by some of the more recent writers these roots have been described as efferent and not afferent nerves, the trunk formed by their union while passing through the pterygoid canal being termed the Vidian, pterygoid or recurrent branch from the ganglion. It has, however, been proved beyond question that the "upper fibrous white portion of the Vidian," *i.e.*, the N. petrosus superficialis major, is a motor nerve coming from the facial, having united with it, according to Hyrtl and Luschka, sensitive fibres, sent off from the superior maxillary to the facial; while the lower portion of the Vidian, the N. petrosus profundus, is a sympathetic nerve, its filaments coming off from the carotid plexus and passing forward to the ganglion.[1]

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[1] American Journal of the Medical Sciences, January, 1858.

The ganglion itself (variously known as Meckel's, the spheno-palatine, pterygo-palatine, nasal, rhinic, and sphenoidal ganglion) "lies imbedded in fat in the depths of the pterygo-palatine fossa, close to the spheno-palatine foramen," and about six mm. (Luschka) distant from the superior maxillary nerve. Sometimes round, more commonly "triangular or cordiform in shape, its pointed end, directed posteriorly, is formed principally of gray ganglionic substance, while the anterior broader portion shows only traces of gray matter."[2] The fibres of the nerves entering into the ganglion in large part continue directly through and reappear in the efferent branches, in part, however, they "are seen, especially in the centre of the ganglion, as very fine nerve-threads that, intercrossing, groove the ganglion in every direction, and lose themselves in its cellules.[3] These latter, chiefly found in groups, "are contained in a cellular stroma," and, varying in size and much more in number, give origin to the ganglionary fibres, if there be such, that pass out as independent nerves, and associated with those afferent fibres that are continued directly through. According to Robin[4] the ganglionic corpuscles are the same as those in the spinal ganglia, much more abundant in proportion to the "accessory elements," and associated with much less amorphous granular matter than in the visceral ganglia. Polaillon, on the contrary, classes the ganglion with those of the sympathetic chain, because of the preponderance of small ganglion-globules over the large ones characteristic of spinal ganglia.[5]

From the ganglion proceed nerves containing fibres from one, two, or the three roots already mentioned, and also, as we have noticed above, some probably originating in the ganglion cells. These nerves are distributed to the nose, the hard and soft palate, the upper part of the pharynx, and the orbit. The nasal branches, superior, middle, and inferior,[6] entering the nose through the spheno-palatine foramen, and from the posterior palatine canal by openings in the palate bone, are distributed to the mucous membrane covering the superior, middle, and inferior turbinated bones, the adjacent external wall of the nasal fossa, and the septum narium; the largest of the septal nerves (the naso-palatine nerve of Scarpa) being ultimately lost in the mucous membrane behind the incisor teeth. This naso-palatine nerve of Scarpa may arise from the ganglion, the palatine nerve, or the pterygo-palatine nerve,[1] and with the middle nasal nerves anastomoses with the plexus dentalis of the infra-orbital nerve. All these "nasal branches are real prolongations of the sensitive root of the spheno-palatine ganglion," the fibres of which have traversed the ganglion and received filaments from the sympathetic root; the septal nerves also perhaps getting additional ganglionary fibres, certainly doing so in some of the lower animals.[2] The palatine branches, anterior, middle, and posterior, descend through three separate channels in the posterior palatine canal, and are distributed to the mucous membrane of the hard and soft palate, and of the uvula, and to the levator palati and azygos uvulæ muscles. The filaments to these muscles constitute in part the posterior branch, and are motor in character, coming off from the seventh pair, as the N. petrosus superficialis major. All these palatine branches are prolongations of the fibres of the ganglion-roots, none of the filaments having been found to have their origin in the ganglion cells.

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[1] In Prevost's investigations (Réch. Anat. et Physiol. sur le Ganglion Spheno-Palatin, *Arch. de Physiologie*, 1868), he was not able, in dogs, to trace back the sympathetic fibres to the carotid plexus; and found in these animals, but not in cats, a very constant sensitive branch from the superior maxillary nerve to the Vidian posterior to the ganglion.

[2] Hyrtl, Anat. des Menschen, p. 812.

[3] Prevost, op. cit., p. 11.

[4] Referred to by Hirschfeld, *Nevrologie*, p. 213.

[5] Etudes sur la Text. des Gangl. Nerv. Periph., *Journal de l'Anatomie et de la Physiologie*, 1866, p. 259.

[6] N. nasal, super. ant., and N. nasal, poster. of Meckel.

The pharyngeal branches, exhibiting much "variety in size, number, and origin," are distributed to the mucous membrane of the upper part of the pharynx, the posterior superior part of the nasal fossa, and the parts immediately around the Eustachian orifice.

"The orbital branches pass through the inferior orbital fissure and are distributed to the periorbit." "Tiedemann once found a nerve fillet arising from the spheno-palatine ganglion and joining the short root of the ophthalmic ganglion."[3] Luschka[4] found two or three fine branches from the ganglion, distributed to the sphenoidal and posterior ethmoidal cells. The sympathetic fibres sent to the "capsule enveloping the eyeball and its striated muscles," are probably distributed to the bloodvessels and not to the smooth muscular fibres of the capsule.

The sympathetic fibres coming into the ganglion as we have seen with the motor (the two sets together constituting the Vidian nerve), are in part distributed to the ganglion cells, in part, after much interlacing both in the interior and on the surface of the ganglion, pass out in company with the other efferent branches and in separate filaments to be ultimately distributed to the "nasal mucous membrane, the internal maxillary artery and the fibro-muscular sheath of the orbit or more probably the neighbouring vessels." As has already been stated no sympathetic fibres originating in the ganglion cells, have in man been discovered.

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[1] Meckel, Manuel d'Anatomie (Jourdan et Breschet), tome iii. p. 95.

[4] Longet, Syst. Nerv., tome ii. p. 112.

[2] Prevost, cit. op.

[3] Anat. des Mensch., iii. p. 518.

To recapitulate, the spheno-palatine ganglion receives sensitive fibres from the second branch of the fifth pair, motor from the seventh, sympathetic from the carotid ganglionic plexus. It sends out branches to the mucous membrane of the nose, palate, and pharynx, to the levàtor palati and azygos uvulæ muscles, to the musculo-fibrous capsule surrounding the eyeball and its striated muscles, and to the walls of the internal maxillary artery and its branches.

The physiology of the various efferent branches has not been so accurately determined as has their anatomy. The nasal, palatine, and pharyngeal branches (leaving out of consideration their sympathetic and motor fibres) have generally been believed to be the filaments of the fifth pair by which the parts supplied are endowed with general sensibility. Unquestionably it is the fifth pair that gives this sensibility, for intracranial section of the nerve destroys sensibility "not only in the superficial but also in the deep parts of the face."[1] It is therefore a most natural conclusion that it is the nasal, palatine, and pharyngeal branches of Meckel's ganglion by which this sensibility is given to the nasal fossa, the palate, and the upper part of the pharynx. In none of the reports of surgical ablation of the ganglion, so far as we can find, is any mention made of the after-degree of sensibility of these parts. In the three cases that have been operated upon in this city, there is now much less acute sensibility of the nasal fossa and the palatine half-vault than is present in the corresponding parts on the sound side. Both Bernard[2] and Prevost,[3] however, have found that after the ganglion has been experimentally removed, the general and tactile sensibility of the mucous membrane remains unimpaired. The marked contrast between the acute sensibility of the infra-orbital nerve and the insensibility to mechanical irritation of the nasal branches from the ganglion inclined Bernard to the belief that these latter were nerves of *special* sense and concerned with the olfactory nerve in the perception of odors. Physiologists generally have not agreed with him in this belief, and Prevost reports[4] that "the ablation of the two spheno-palatine ganglia produces no notable disturbance in the sensibility either tactile or *olfactory* of the nasal mucous membrane." That the fifth pair is not directly concerned in olfaction has been shown clinically by many cases of anosmia in which general sensibility has remained long after the entire loss of the special sense.

The nerve fibres distributed to the levator palati and azygos uvulæ muscles are, in all probability, motor, associated with the sensitive fibres very likely as suggested by Longet[1] in order that the contraction of these muscles may protect against disagreeable odours, "as the iris protects against too intense light." Debrou concluded from the results of his electrization of the facial nerve within the cranium that this nerve "gives rise to no movements of the velum palati." Nuhn, on the contrary, "by galvanic irritation of the facial within the cranium, in the case of a decapitated man, produced movements of the velum palati.[2] If these muscles receive any motor fibres from other encephalic nerves, then, of course, their paralysis need not follow ablation of the spheno-palatine ganglion. Swan[3] states that the levator palati receives filaments from the pharyngeal plexus, and according to Volkmann the par vagum has an influence on the motion of the levator palati.[4] The published reports of the various cases in which the "Carnochan operation" has been performed, throw no light upon this point in the physiology of the ganglion. In Dr. Blackman's case there does not now seem to be any paralysis of the levator palati; there is slight deviation of the uvula to the left, but this may be, as lateral deviation of the uvula often is, congenital. In Dr. Foote's case there is now some paralysis of the levator palati, and a decided deviation of the uvula to the affected side.

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[1] Bernard, Syst. Nerv., tome ii. p. 93.

[2] Op. cit., tome ii. p. 95.

[3] Op. cit., p. 214.

[4] Op. cit., p. 214.

The sympathetic fibres from the ganglion play their ordinary role in the secretion of, and circulation through, the various parts to which they are distributed. Those that we have already seen to be ultimately lost on the fibro-muscular eye-capsule were, by Müller, thought to be concerned, by distribution to the smooth muscular fibres of the capsule, in effecting projection of the eyeball; but Prevost and Jolyet's experiments[5] seem to be conclusive, and to establish the fact that the nerve fibres are not distributed to the muscular fibres of the capsule, but to the accompanying bloodvessels, and consequently have no influence upon the projection of the eyeball, a "phenomenon that continues even after the entire ablation of the spheno-palatine ganglion."[6]

Respecting the physiology of the ganglion itself but "little is known," and a diversity of opinion prevails, not only as to its office, but even its nature, whether allied to the spinal or sympathetic ganglia. That it is the latter is generally believed, and the ganglion is described by most writers as one of the cephalic ganglia of the sympathetic system. But Hirschfeld[7] declares that it does not belong to the ganglionic system of the great sympathetic, but is one of that "series of little ganglia in the head that are to the third and fifth cranial nerves what the intervertebral ganglia are to the spinal nerves." He says that when the ganglion is absent, as it often is, its branches always come off from the fifth pair; that though its sympathetic root is often wanting its motor and sensory roots connecting it with the cranial nerves are always present; that it contains much less gray matter than the sympathetic ganglia, so much so that at times it has as white a colour as the cranial nerves themselves;[1] that its intimate structure is in every respect analogous to that of the intervertebral spinal ganglia, while it differs from that of the splanchnic ganglia. He considers that the anatomical differences mentioned by Robin (already referred to) show still more that this ganglion, like the Casserian, is not to be regarded as of the sympathetic system. It has already been seen that Polaillon holds that this view is incorrect.

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[1] Traité de Physiologie, tome iii. p. 576.

[2] Longet, op. cit., tome iii. p. 577.

[3] Demonstr. Nerves of Human Body, p. 22.

[4] Bock, Anat. des Mensch, ii. p. 725.

[5] Prevost, op. cit., p. 221 et seq.

[6] Ibid., op. cit., p. 232.

[7] Op. cit., p. 213.

The size of ganglion cells and their polar character will not suffice to determine to which of the two classes of ganglia such cells belong. A prevalent opinion has been that large cells belong to the rachidian, and small cells to the sympathetic ganglia, and this is unquestionably true in the main, but all sizes of cells can be found in the spinal and head ganglia. Occasionally, though rarely, large cells are met with in visceral ganglia, and small cells occur "where the sympathetic system is not to be thought of," as "in the brain, the spinal cord, the retina, and the cochlea."[2] Remak maintained that in the sympathetic ganglia only multipolar cells occur, but Kölliker declares that this "is certainly incorrect,[3] unipolar cells being particularly met with," but bipolar and multipolar cells also being present.[4] According to Duchenne[5] very few of the cells in the cervical sympathetic ganglia are apolar, by far the most being bipolar. Beale[6] contends that at least two fibres arise from every ganglion cell. Polaillon[7] is "more and more inclined to deny the existence of apolar cells, and convinced that they have always two or more poles, although not prepared to deny absolutely the existence of unipolar cells." "There does not appear to be any material difference of structure between the ganglia of the sympathetic and those of the cerebro-spinal system, excepting, as Henle states, the existence of a greater number of gelatinous fibres in the former."[8] The cellules, therefore, will not indicate whether Meckel's ganglion is spinal or sympathetic-like.

The presence or absence of fibres arising from the cellules was by Bernard considered a certain guide in the assigning of a ganglion to one or the other system. He says:[1] "The ganglia of the great sympathetic give origin to nerve filaments in this differing from the intervertebral ganglia of the spinal nerves, which never directly furnish any filaments. When one sees a nervous ganglion supplied with nerve-fibres originating from it, it may be regarded as appertaining to the great sympathetic system." Were this true there could be but little question as to the spheno-palatine ganglion being sympathetic, for, as has already been stated, both in dogs and cats Prevost found fibres of ganglion origin, and the existence of such in man, though not as yet discovered, may by analogy be legitimately inferred. But the intervertebral ganglia do give rise to nerve fibres. This fact, announced by Waller, was confirmed by Samuel,[2] is accepted by Bock,[3] Schiff,[4] and Bidder,[5] and is strongly insisted upon by Baerensprung.[6] Vulpian[7] says: "There are found in all spinal nerves," besides the sensitive and motor fibres, "others less numerous, the central extremities of which are found in the spinal ganglia." Kölliker[8] states that "every ganglion may be considered as the source of new nerve-fibres," and that "the greater part of the ganglion globules (of the spinal ganglia) appear to be united to nerve-fibres; sometimes they give origin to but a single one, sometimes to two or more fibres."

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[1] It was noticed by Swan (op. cit., p. 17) that the ganglion is at times almost without any ganglionic appearance; and Cruveilhier (*Anat. Descript.*, t. iv. p. 639) states that, "in a certain number of cases, I have searched in vain for any ganglionic structure, that is to say, gray substance and a dispersion of white fibres through it.

[2] Kölliker, Gewebelehre, p. 326.

[3] Kölliker, op. cit., p. 326.

[4] Ibid., op. cit., p. 318.

[5] Gazette Médicale, 1865.

[6] How to Work with the Microscope, p. 146.

[7] Op. cit., p. 252.

[8] R. B. Todd, Cycl. Anat. and Phys., vol. iii. p. 650.

Neither the cellules of, nor the fibres from the spheno-palatine ganglion prove then that the general opinion of its sympathetic character is correct. The proof must be found if at all in its physiology, not its anatomy.

The intervertebral ganglia are known to be acutely sensitive to pinching. The sympathetic ganglia Bernard maintains are insensible to such irritation,[9] and this view has been held by Bichat, Wutzer, Lobstein, and Dupuy. But Colin[10] found that *all* ganglia are sensitive, and Budge[11] determined by experiment that the sympathetic ganglia are so, but in an unequal degree, and all less than are the fifth pair and the posterior roots of the spinal nerves. Haller, Flourens, Brachet, Meyer, J. Müller, and Longet[12] have found the sympathetic ganglia more or less sensitive to pressure and slight irritation. Pinching Meckel's ganglion produces, according to Bernard, no very evident sensibility, according to Prevost none at all, while tearing it away gives rise to very acute pain, "owing doubtless to the unavoidable laceration of neighbouring sensitive fibres." The severe pain experienced by Dr. Mussey's patient[13] when the ganglion was

[1] Op. cit., tome i. p. 299.

[2] Mougeot, Recherch. sur quelq. troubl. de Nutrit., etc., p. 67.

[3] Op. cit., p. 559.

[4] Lehrbuch der Musc. u. Nerv. Phys., p, 119.

[5] Reichert & DuDois Reymond's Archiv., 1865.

[6] Mougeot, op. cit., p. 67.

[7] Jour. de Phys., 1862.

[8] Op. cit., p. 317.

[9] Op. cit., tome i. p. 324.

[10] Compt. Rendus, 1861, referred to by Edes, Phys. and Path. Symp. Syst. p. 15.

[11] Deutsche Klinik, 1858.

[12] Op. cit., tome iii. p. 593.

[13] Cincinnati Lancet aud Observer, Aug. 1869.

seized with the forceps was very probably due to the taking up of some sensitive fibres adjacent.

So far the spheno-palatine ganglion is more nearly sympathetic than spinal.

Has it any trophic action, and will the determination of this throw any light upon its ganglion character? It has already been seen that fibres arise from the cellules of the intervertebral ganglia, the sympathetic ganglia, and probably from Meckel's ganglion in man. These fibres, or some of them at least, are the conductors of nutritive influence originating in the cellules. Bock considers "influence on the nutrition of nerves" one of the "experimentally determined properties of ganglion substance." Budge, Samuel, Baerensprung, and Vulpian have found spinal ganglia to be nutritive centres. That sympathetic ganglia also exercise a trophic action has been frequently demonstrated, notably by Waller in his experiments upon the cervical sympathetic, the degeneration resulting from section proceeding up to but not beyond the ganglion.

Acting upon the recognized law that when by section or otherwise "a nerve is separated from the nerve centres, it undergoes, in a few days, a degeneration that produces a loss of its physiological properties and functions," Prevost[1] cut the nerves before entering and after leaving the spheno-palatine ganglion, and studied the resulting changes. When "the naso-palatine nerve (*i. e.*, the sensitive root), was spared, the proportion of altered fibres was extremely small in the nasal fossa, and almost nothing in the palatine vault." When the same nerve was divided above the ganglion, there was not a healthy fibre in the palatine vault, though some undegenerated nerve tubes were found in the nasal fossa, "which without doubt came directly from the ganglion or from the Vidiano-maxillary nerve." "The trophic action that the ganglion exercises upon the nerves of the nasal and palatine mucous membrane is very limited, and concerns but very few of the nervous filaments."

Meckel's ganglion therefore has but little influence upon the nutrition of nerves, in this differing from sympathetic and still more widely from spinal ganglia; differing also from the ganglion of Gasser, which is the trophic centre of the branches of the fifth pair,[2] is in many respects closely allied to the spinal ganglia, and with which the spheno-palatine ganglion was joined by Hirschfeld in his assignment of the cranial ganglia to the rachidian class.

Sympathetic ganglia exercise an influence upon the secretions and blood supply of the parts to which their efferent branches are distributed. Has Meckel's ganglion any such influence upon the area of its nerve-territory? In none of the reported cases of its surgical removal is mention made of any effect produced upon the secretion of the nasal mucous membrane, nor was there any increase or diminution of this secretion following Prevost's experimental ablations of the ganglion. Electrization, however, did produce a decided effect. "By excitation of this ganglion I have always obtained in the corresponding nasal fossa an abundant secretion of a serous transparent mucus resembling that of coryza. This flow is accompanied by a marked elevation of temperature in the same fossa; such exaggerated nasal secretion and elevation of temperature are not produced by the electrization of the central extremity of the great sympathetic, and depend consequently upon the ganglion."[1]

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[1] Op. cit., pp. 216–219.

[2] Baerensprung, Mougeot, op. cit., p. 68. Schiff, op. cit., p. 121.

The blood supply of the parts does not seem to have been affected in the reported cases of surgical and experimental removal of the ganglion, and electrical stimulation does not produce any very decided apparent influence, though "the elevation of temperature that follows indicates that the ganglion has some controlling power over the circulation" through the branches of the internal maxillary artery.

But whether the ganglion is in its nature and office allied to the sympathetic or the spinal ganglia, does it, in either case, because "composed of gray matter, play an important part as a generator of nervous power, of which, like a galvanic battery, it affords a continuous supply;" *i. e.*, such power as will add to and intensify "morbid nervous sensibility?" It is not always present, hence is not an essential part of the sensory nervous system. The amount of gray matter in it is not constant, it being in different individuals found "of all shades of colour from deep gray to almost the whiteness of ordinary nerve tubes;" its generating or reinforcing power, therefore, if it has such, must vary within wide limits. Does either a spinal or sympathetic ganglion, containing as it does gray matter, and in connection with sensitive fibres, intensify sensitive impressions transmitted through it to the brain? It has been proved that these sensitive fibres bear solely a relation of vicinity to the gray ganglionic cellules, only sympathetic or trophic fibres arising directly from them. An inflammatory irritation passing from a ganglion to sensitive fibres traversing it may cause, as Mougeot suggests, the neuralgia that at times accompanies herpes zoster, and "does not precisely correspond with the eruption in its course and duration;" but it cannot legitimately be inferred from this that the ganglion adds to the force of sensations originating beyond it, and conducted by nerves passing through it. Johnstone[2] a hundred years ago declared that the influence upon such impressions so transmitted was one of *restraint*, rendering the sensibility of parts to which the nerves are distributed "confused and indeterminate."

The purely anatomico-mechanical theory, that ganglia are but places where afferent nerves are divided up and their fibres recombined,[1] does not support the "re-enforcing battery" idea, nor in truth does the "little subsidiary brain" theory,[2] for it is an opposing and reflecting influence that the "little brains" exert. Johnstone thought that being in relation solely to parts not under the control of the will, the sympathetic ganglia intercepted the determinations of the will; and Bichat saw in them the means by which was secured the independence that he claimed for the nervous system of organic life. Reil regarded them as separators or isolators, "preventing ordinarily the transmission of feeble impressions, allowing to pass only those of much intensity."[3] Says Bock,[4] "the sensitive fibres only upon very great excitation or irritation conduct beyond the border of the ganglion to the brain or spinal cord from which they went out."

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[1] Prevost, op. cit., p. 228.

[2] Philosophical Transactions, 1767.

The "cut off" theory, whether true or not, and very probably it is not a correct explanation of the ganglion-office, is directly opposed to the idea of any ganglionic exaggeration of abnormal peripheric sensibility.

There is an opposing action of the cerebro-spinal and sympathetic nerves upon the circulation, that takes place, it is highly probable, through the medium of the ganglion cells;[5] and there is a "reflex, suspending, or paralyzing" action of the cerebro-spinal system upon movements of parts under control of the sympathetic system, that seems to be intimately connected with the presence of ganglia. "Always when excitation of any nerve produces an arrest of movement, there are found ganglion nerve-corpuscles along the course of the fibres that transmit the excitation; on the contrary, when the nerve fibre does not present any nerve-corpuscle along its course between the point of excitation and its termination the effect of an irritation is always motor."[6] Ganglia, "occur where they may, are organs of reflexion" (Bock),[7] and convert centripetal into centrifugal nerve influence, but it is "motor impulses that are put in action," and this reflex power like that of the spinal cord is independent of consciousness.

There is a trophic action of spinal ganglia, which "oppose, so to speak, an insurmountable barrier to the progressive march of alterations of the posterior roots." In cases of sclerosis of the anterior columns of the cord "the atrophy affects the motor fibres from the cord to the periphery," yet when the posterior columns are attacked, "the atrophy is arrested at the ganglia."[8] A similar trophic action we have already seen to be exercised by the sympathetic ganglia upon sympathetic nerves.

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[1] Advocated by (among others) Meckel, Zinn, Scarpa, Valentin, Boyer, Calmeil, Swan, and in part by Bock.

[2] Held by (among others) Johnstone, Winslow, Bichat, Reil, and Wutzer.

[3] Longet, Syst. Nerv., tome ii. p. 567.

[4] Op. cit., p. 593.

[5] Edes, op. cit., p. 51.

[6] Longet, Phys. cit., tome iii. p. 619.

[7] So too Cayrade, in his Prize Essay, considers sympathetic ganglia as centres of reflex actions.

[8] Vulpian, Arch. de Physiol, 1868, p. 142.

The gray substance of ganglia, then, has been thought to have an isolating, an opposing, an inhibitory, a reflecting, a trophic power; but what physiologist has assigned to it an intensifying action upon sensations conducted through or rather along beside it. Very possibly the term "little brain," applied to a ganglion, has had much to do with giving plausibility to the idea that it is the "great brain" in miniature.

If Meckel's ganglion exercised the exaggerating influence claimed for it, in the great majority of neuralgias of the second branch (as the starting point of the morbid sensibility if peripherically local is in the distributed filaments of the infra-orbital nerve), the sensibility would have to be carried centrally along the infra-orbital fibres to the brain, reflected outwards along the spheno-palatine nerve to the ganglion, be furnished with the newly-generated nervous power, and then sent back to the centre of consciousness of "accumulated morbid nervous sensibility." Or perhaps somewhat of this circuit might be omitted, and the sensibility be transferred by induction from infra-orbital to spheno-palatine fibres in the extra-cranial common trunk, then to pass to the ganglion to be re-enforced and sent to the brain!

If Meckel's ganglion does not exert the claimed exaggerating influence, and if as Alcock[1] maintains (and there is good anatomical ground for him to rest upon), it does not belong to the fifth pair, but is merely connected with it, in what respect can it be considered the "key of the operation," or of what advantage can it be to remove or isolate it, except in cases of neuralgia, resulting from disease of or pressure upon the nerve fibres in the palatine canals, or the nasal and palatine mucous membranes; and in these cases only because it is so connected with the sensitive trunk of the nerve fibres, that section of the latter must necessarily separate it from the encephalon so far as its sensitive root is concerned.

The exsection of the superior maxillary nerve back to the foramen rotundum, in what cases is it to be thought of, and how much benefit is to be expected from it? No one would perform it in a very recent case of neuralgia, or for the relief of a case of any moderate severity. It is only when the disease is present in most aggravated form, particularly when of the epileptiform variety, attended with horrible suffering, and having existed long enough to have proved the partial nature of the relief afforded by medication, that one would seem to have warrant for the performance of the "Carnochan operation," an operation formidable in appearance and by no means devoid of danger, notwithstanding Podrazki's assertion that it is "dangerless." The severe hemorrhage that has more than once resulted from the unavoidable wounding of the internal maxillary artery and its branches has very seriously compromised life, though a fatal result has not as yet been attributed to the operation. But the cases in which alone the performance of the operation would seem to be justifiable, are the very ones in which from the cause of the neuralgia there is little or no prospect of any other than very temporary relief being secured. If it was local disease of the infra-orbital nerve or its branches that was the *fons et origo mali*, there would be good reason for the exsection of the nerve from before its entrance into the infra-orbital canal. But notwithstanding the enlarged and congested nerve trunks that have at times been removed, in at least the great majority of cases the real cause of the neuralgia is either constitutional or a central lesion. There are too many cases on record of intra-cranial lesions revealed upon autopsy, too many cases of the utter failure of all local surgical or medical treatment to permit any one to believe that it is solely to nerve changes in the bony canals of the face, or peripheral, that neuralgia of the second branch of the fifth pair is due. The clinical history of several of the reported exsections, shows that the real trouble, if not primarily located behind the place of section, was so at the time of the operation, or very soon became so, for in these cases the pain that early returned was felt in the peripheric terminations of the first and third branches of the fifth pair. Anstie[1] has maintained that "in *all* cases of neuralgia there is either atrophy or a tendency to it in the posterior or sensory root of the painful nerve, or in the central gray matter with which it comes in closest connection." Trousseau[2] has admitted that the neuralgia may be of either centric origin or consequent upon "lesion of the periphery of the nerve-trunk, or of some portion of it."

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[1] Cycl. Anat. and Phys., vol. ii. p. 285.

But whether the disease for the cure of which the operation is performed is of central or peripheral origin, is a question of little importance, if it can be shown that permanent relief may be expected from the exsection of the superior maxillary trunk back to the foramen rotundum. But if it is a fact that the relief afforded by it is only temporary, in a considerable proportion of cases of not longer duration than the intermissions secured by other and less formidable operations, or by medication, then it becomes a serious question if the "Carnochan operation" is not an "act of desperation," to which recourse should be had hardly sooner than to the division of the sympathetic in the neck, that Charles Bell[3] wished could be performed with safety, believing it would relieve the neuralgia under consideration. What is the record?

1. Carnochan.[4] "Entirely free from neuralgic pain" at date of report, *fourteen months* after operation.
2. Carnochan.[5] "Free from pain" *two months* after operation.
3. Carnochan.[6] "Progressing favourably" *twenty-eight days* after operation.

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[1] Reynold's System of Medicine, vol. ii. p. 742.

[2] Clinique Médicale, 1865, t. ii. p. 308.

[3] Bell on Nerves, Washington, 1833, p. 193.

[4] Am. Journ. Med. Sci., Jan. 1858.

[5] Ibid.

[6] Ibid.

4. Weinlechner.[1] "Result *dubious*."

5. Nussbaum.[2] "Pain had entirely ceased up to time of publication," *several months* after the operation.

6. Wagner.[3] "Recurrence of pain after *three months*."

7. Schuppert.[4] "The pain returned, and before I finally succeeded in relieving the sufferer permanently I performed several other operations, tying the carotid artery and resecting the facial nerve at the foramen styloideum. It is now over one year since I performed the latter operation, and the man has never since been afflicted with the slightest pain."

8. Schuppert.[5] "After the lapse of *several years* no return of the pain has taken place."

9. Billroth.[6] Pain recurred in about *six weeks*.

10. Blackman.[7] Pain returned in *sixteen months*. At times as severe as before operation.

11. Mussey.[8] "While relieving greatly, it did not release me from suffering, until a section of the inferior dental nerve was taken out. After this for quite four months I enjoyed perfect immunity from pain. The pain returned again, and has been constant ever since."[9] The second operation was performed three and a half months after the removal of Meckel's ganglion.[10]

12. Podrazki.[11] Pain *very soon* felt in the supra-orbital branches. Supra-orbital trunk exsected in its course along the upper part of the orbit, *eleven days* after first operation. Pain had not returned *fourteen days* later.

13. Foote.[12] Pain returned in *three months*. As yet of moderate severity.

Whole No. of operations, ...	13
" " in which pain is known to have recurred, . .	7
Of these *seven* the return was—	
at time not stated (No. 7), ...	1
within *one month* (No. 12), ...	1
within *two months* (No. 9), ...	1
in *three months* (Nos. 6, 13), ...	2
in *eight months* (No. 11), ...	1
in *sixteen months* (No. 10), ...	1

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[1] Dr. Schuppert, quoted by Dr. Blackman, Am. Journ. Med. Sci., July, 1869.

[2] Ibid.

[3] Schmidt's Jahrbücher, B. 146, p. 64 *et seq.*

[4] Private letter from Dr. Schuppert. June 1, 1870.

[5] Private letter referred to.

[6] Berlin. Klin. Wochenschrift, No. 18, 1868.

[7] Am. Journ. Med. Sci., July, 1869.

[8] Cincinnati Lancet and Observer, Aug. 1869.

[9] Private letter from patient, July 23, 1870.

[10] Cin. Lanc. and Obs., *loc cit.*

[11] Wien. Med. Wochenschrift, 103, 4, 1869.

[12] Unreported. Operation performed at Cincinnati Hospital, Feb. 1870.

Of the *six* in which return of pain has not been reported, the history is known for—

"*several years*" (No. 8),	1
"*several months*" (No. 5),	1
fourteen months (No. 1),	1
two months (No. 2),	1
twenty-eight days (No. 3),	1
The result was at time of report "dubious" in (No. 4)	1

Granting that in all the six cases in which we have no knowledge of return of pain, there was no such return, the operations were successes, and the neuralgia was in each *permanently* relieved by the exsection of the superior maxillary nerve back to the foramen rotundum; yet in at least fifty per cent. of the operations the freedom from pain afforded did not continue a year and a half. It may with propriety be supposed that the percentage of failures much exceeds the fifty per cent. just stated. In accepting as successful cases, all in which the result of the operation has not been fully given, we cannot certainly be accused of a want of liberality. Is a few months' freedom from pain to be considered indicative of the success of the operation, and is this operation the only means by which such freedom has been or can be secured? In Stromeyer's opinion "fourteen months is no success;" and there are numerous cases on record of prolonged relief secured by medical treatment, and by section of the nerve in the infra-orbital canal, or just external to it. For example, Fothergill reports[1] (and reference is made to his case not so much because of the length of time as because of the connection that his name has with trigeminal neuralgia) at least a year's relief secured in a "most obstinate" case by the persistent use of the "ext. hemlock." Again, Wagner[2] secured not less than fourteen months' relief in at least eight cases by excising portions of the infra-orbital nerve, varying from eleven to eighteen and a half lines in length; in five of these eight the relief being for at least two and a quarter years. Patruban by excising three-quarters of an inch of the nerve in the infra-orbital canal, procured fifteen months' relief for the patient upon whom Podrazki afterwards operated (No. 12 above).

If surgical interference seems necessary, infra-orbital neurotomy ought to precede deep section of the superior maxillary trunk. When, as in Podrazki's case, pain returns again and again in spite of the various operations performed, an intra-cranial or constitutional cause of the neuralgia may be accepted, and a recurrence of pain must be expected as soon as the patient recovers from the shock of the operation, and the recognized temporary palliative influence of hemorrhage has passed off. But "neurotomy is not applicable to certain neuralgias of cerebral origin, such as those of which Trousseau has given so good a description under the name of 'Epileptiform Neuralgia;' nor should it be practised if the neuralgia depends upon constitutional troubles, such as rheumatism, syphilis, and the like."[1]

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[1] Elliott's Fothergill's Works, 1782, p. 436.

[2] Schmidt's Jahrbücher, B. 146, p. 64 *et seq.*

It is in just those cases, however, that are of intra-cranial origin or of the epileptiform variety, that neurotomy after the method of Carnochan will be thought of; for it is such cases that resist other less violent treatment, and such in which *all* curative measures will very probably, Trousseau says very certainly, fail. If the "Carnochan operation" has been performed, and the pain has returned, surgical interference, so far as the second branch of the fifth pair is concerned, has reached its utmost limit. The other trigeminal trunks and the portio dura at its point of emergence may be divided (Dr. Schuppert's case shows with some hope of producing permanent relief), but the superior maxillary trunk has been removed as far back as it can be reached with the knife. Recourse then must be had to electricity and narcotics, and by one or both considerably protracted relief may often be obtained.[2] As experience has shown that similar relief may frequently be secured by the same means without any precedent operation, the latter should be performed, if ever, only after the most thorough trial of every other recognized means of treatment has failed to secure relief; and when the superior maxillary trunk is exsected back to the foramen rotundum, the "removal of Meckel's ganglion or its insulation from the encephalon" cannot on either anatomical or physiological grounds be considered of importance, much less the "key of the operation."

CINCINNATI, July, 1870.

ART. V.—*Sequel of a Case of Exsection of the Trunk of the Inferior Dental Nerve, together with the Second Branch of the Fifth Pair of Nerves beyond Meckel's Ganglion, for severe Facial Neuralgia.* By GEO. C. BLACKMAN, M. D., Professor of Surgery in the Medical College of Ohio.

I REPORTED in the July number for last year of this Journal, the case of Mrs. S. J. M., in which I had exsected, Jan. 7th, 1868, the inferior dental nerve, as well as the second branch of the fifth pair beyond Meckel's ganglion. These operations were performed—an interval of one week between them—at my clinic, at the Samaritan Hospital. Notwithstanding that family afflictions of no ordinary character followed shortly after these operations, she experienced complete relief from her neuralgic troubles, which had been of the most terrible nature and of eleven years' duration. It was not until February of the following year that she felt any symptoms of a return. This I alluded to in my former report, which was prepared for publication about sixteen months after the operation. The threatened return yielded to a mild cathartic and to a more rigid observance of the principles of hygiene. I was this day (Aug. 16th) informed by her husband that she remained well—perfectly free from pain—until the latter part of August, 1869, nearly twenty months after the operation. From that period until the present time the paroxysms have increased in severity, until the most enormous doses of morphia administered by hypodermic injection, often fail to give relief. As Mrs. M. resides in the vicinity of the Samaritan Hospital, the resident physicians of that institution, Drs. Hall and Bishop, have kindly relieved me of the trouble otherwise connected with a daily attendance upon the case. I visit her from time to time, and it is truly distressing to witness one of her paroxysms of suffering. Her health is greatly impaired, and she earnestly prays for that relief which cannot be found this side of the grave.

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[1] Follin, Traité Element. de Path. Ext., tome ii. p. 241.

[2] As, for example, in the case operated on by Billroth, and reported by Wiesner (No. 9 above).

Of four cases in which to my knowledge exsection has been performed by other surgeons in Ohio, but one remains free from pain, and in this case only some three or four months have elapsed since the operation. I am informed by Dr. Carson, of Middletown, that in his case the patient was relieved for one year. I learn from Dr. Wm. H. Mussey that in his case the pain returned shortly after the report of his operation, which, if I mistake not, was published some seven or eight months after its performance. The relief so long afforded by the operation in my own patient has been a cause of gratitude both on her part and that of her husband, as he is a hard-working man, very poor, and can but ill afford to pay for the morphia and other narcotics required to give, as they do, but partial relief.

Cincinnati, Aug. 16th, 1870.

Art. VI.—*Carbonate of Ammonia in the treatment of Pneumonitis.*

By A. Patton, M. D., of Vincennes, Indiana.

Carbonate of Ammonia has long been used in pneumonitis to fulfil certain special indications in the advanced stages of the disease, under the supposition that its value depended upon its stimulant properties, sustaining the vital forces in cases where there was extreme prostration, or aiding expectoration by giving tone and strength to the respiratory organs. But I am convinced that this application of the remedy, in pneumonitis, is far too limited, and that its stimulant properties constitute but a very small proportion of its remedial value.

My attention was first directed to this medicine, as a remedy in all the stages of pneumonitis, during the winter of 1862, when in charge of a large number of cases of the disease, and placed in a situation where it was impossible to procure such medicines as I desired. Ammonia was employed, not upon theoretical considerations, or because it was supposed to be the best remedy, but for the want of a better. Thirteen well-marked and very severe cases of pneumonitis were placed upon carbonate of ammonia from the first day of the attack, and submitted to treatment by this medicine exclusively, with the exception of counter-irritation in several of the cases. In many of the cases there were high febrile excitement, severe pain in the region of the inflamed lung, sputa very tenacious and rust-coloured, and crepitant râle distinct in every case, with more or less severe dyspnœa in ten of the cases. In two double pneumonitis existed.

The effect of the medicines was most carefully observed both by myself and assistant, and to my agreeable surprise I observed that, instead of increasing the febrile excitement and heat of surface, both were greatly reduced in a very short time. The pulse became less frequent, but full and strong, the skin moist, and temperature reduced. The pain in the region of the suffering lung was promptly diminished in all the cases. But its most strikingly beneficial effect was upon the character and frequency of the respirations, the dyspnœa being relieved and the respirations rendered easy, full, regular, and decidedly less frequent.

These thirteen cases all recovered, without a single important complication being developed, and without any other medicine being given than ammonia. The average duration of the attacks was only nine days. More satisfactory results could not have been expected. Since that time I have employed the remedy in about three hundred cases, but as many of them were mild, and in quite a number of them other medicines were used, I can only refer to ninety-six well-authenticated ones in which the disease assumed a severe form, and in which no other medicine was employed, and will therefore include only these cases in my statistics. But two of that number died.

Pneumonitis, so far as published statistics can be relied on, is a very fatal disease, the mortality varying, under different modes of treatment, from 1 in 2½ (by Rasori's) to 1 in 32 (by Bennett's).

In England 17 per cent. of the deaths are said to be caused by pneumonia, and in America its death-rate is believed to be still higher.

It is not our purpose on the present occasion to discuss the pathology of pneumonitis, or to point out what we believe to be the *modus operandi* of ammonia in the cure of the disease, but merely to give the results of our clinical experience with this remedy. It will suffice, therefore, to say it relieves, as we conceive, the hyperinosis and thus prevents many of the complications which are likely to occur during the progress of the disease, and that it diminishes the viscidity of the sputa, promotes expectoration, prevents embolism, and promotes the oxygenation of the blood.

If the remedy be given early in the disease, and regularly, in from five to ten grain doses, every two hours, night and day, it will, in almost every case, so limit the exudation process as not only to greatly lessen the amount of hepatization, but to insure a prompt and rapid absorption of the exudation, and occasionally it will entirely prevent hepatization, and terminate the inflammation by resolution. Upon these points I cannot be mistaken, as my observations have been extensive, and carefully made.

As already stated, I have treated during the last five years ninety-six cases of pneumonitis upon the exclusive ammonia method, using no other medicine excepting that in the congestion stage I sometimes give sixty drops of chloroform to aid reaction. When an aperient is required I give sulph. magnesia. Blisters may be necessary in some cases. No alcoholic agents are allowed in any stage of the disease.

Quinia is sometimes given as a tonic in the advanced stage, and may be required to control malarial influences, but is not advisable in the early stage.

In the three years from 1862, when I first began to employ the remedy, until 1865, I pursued a mixed treatment, sometimes employing alcohol, alternating with ammonia, and some cases were treated with veratrum viride, while others received tart. ant. and calomel. It was during this transition period that I was enabled, by comparative results, and effects of remedies, to determine absolutely in favour of ammonia. I am permitted to add the valuable testimony of some of my professional brethren who have used the medicine at my suggestion.

Dr. Witherspoon, of Bruceville, Ind., states in a letter to me, that "the ammonia treatment suggested by you, and adopted some two years ago, has been decidedly the most effective plan I have used, or seen used." "During the last year I have treated 72 cases of distinct pneumonia, with a loss of two cases."

Dr. Stevens, of Russellville, Illinois, informs me that he has treated during the last three years, 78 cases of pneumonia. "Thirty-five of these cases were treated with carbonate of ammonia—*generally* severe cases with one death. Forty-three were treated with tart. ant., opium, veratrum viride, chlorate potassa, aconite, quinia, alcohol, mostly *mild* cases; out of this number four died.

Dr. Thomas, of Oaktown, Ind., states that "himself and partner treated, in 1869, 73 cases of pneumonitis, with one fatal result; this was a case of scarlatina, followed by pneumonitis. In 1870, up to June 1st, 33 cases, with two fatal results, one an old lady, sick three days before I saw her, and the medicine was not administered regularly; in the second fatal case I was induced to use opium, at the urgent solicitations of others, which I am now convinced was bad practice. The uniform treatment in all these cases was carbonate of ammonia, blisters when required, and quinia, to control malarious influences."

The reports of these gentlemen are entirely reliable, and altogether, with my cases, make an aggregate number of 309, all severe and well-marked cases of pneumonitis. There is a point to which I wish to direct special attention; it is that the disease assumes its most severe form in the localities where these investigations were made. A very large number of fatal cases occur every winter and spring. In November, 1869, there were three fatal cases of pneumonitis in one family, all strong, vigorous persons, and on Allison Prairie, in Ill., and Shaker Prairie, Ind., the disease prevailed in a very severe form during the last two winters. The report of Dr. Stevens indicates both the extent of the disease in those localities and the comparative results of treatment, as in 43 cases treated by the old methods he lost 4, being 1 in 11; while by the ammonia method he lost only 1 in 35 cases. In the 309 cases reported there were eight deaths, or one in 38 cases.

This exhibits the most favourable results of any method of treatment yet presented to the profession, and I respectfully ask physicians everywhere to give this remedy a fair trial, and report results through the medical journals, for if I have placed too high an estimate on its remedial value, in pneumonitis, the sooner I am convinced of my error the better. I do not claim to be the first to employ this agent in pneumonitis; many others allude to the remedy in the highest praise, but they all advise it as an auxiliary to other measures, and recommend it mainly as a stimulant. True, Dr. Flint advises its employment to prevent heart-clot, and gives it throughout the disease. Dr. Styles employs it in large doses, but at what stage of the disease I am not informed. Many physicians in the West use hydrochlorate of ammonia to promote absorption of the exudation, but for no other object as I understand. Some writers contend that the carbonate of ammonia is decomposed in the stomach, and assumes the form of hydrochlorate, by the action of hydrochloric acid. This may be true but it should not cause us to substitute the hydrochlorate for the carbonate, as I have found the effects of the two preparations very different in pneumonitis, as well as other diseases. In neuralgia the hydrochlorate is a valuable medicine, while the carbonate produces little or no effect. In cases of pneumonitis, where absorption of the exudation is accomplished very slowly, the hydrochlorate may be substituted for the carbonate with advantage, but for this condition I have never found any remedy equal to turpentine; it acts promptly and with great certainty, and is probably the safest and most efficient remedy which can be used for this condition.

ART. VII.—*Remarks on the Treatment of Twenty-one Cases of Infantile Capillary Bronchitis, observed in Alexandria, Virginia, during the winter of* 1869–70. By BEDFORD BROWN, M.D., of Alexandria, Virginia.

DURING the past winter this community was visited by an epidemic catarrhal affection chiefly confined to children, an unusually large proportion of the cases of which at some stage assumed the form of capillary bronchitis. Of the latter, twenty-one cases came under the professional care of the writer.

Treatment.—The leading objects were, in the first instance, to remove mechanical obstruction from mucous exudation in the air tubes; secondly, to abate bronchial inflammation and fever; and thirdly, to prevent a recurrence of mucous collection in sufficient amount to impede respiration, and to sustain the system during the progress of the case. To accomplish the first object, emetics of ipecacuanha were used in every case but one. In a certain proportion of cases it was observed that the high grade of febrile reaction attending the primary or dry stage, diminished materially for a time, soon after the occurrence of copious secretion, denoted by extensive subcrepitant râle, with the super-addition of a new symptom, that of dyspnœa. When this particular stage was taken advantage of, and the mucous accumulation promptly rejected by an emetic, the subsequent progress of the case was mild and favourable. But, on the contrary, when the mucous collection was permitted to remain twenty-four hours or more, continued interruption to the process of arterialization induced permanent engorgement, and the case became protracted and dangerous. When the respiratory sounds were examined just before and then directly after the full operation of an emetic, it was found that the subcrepitant râle had been greatly reduced in extent, and in some instances almost obliterated.

When used freely in the primary or dry stage, the effect in a great measure was to prevent the occurrence of that râle. For instance, in the case of a child of two years old copious emesis removed a very extensive subcrepitant râle, which never returned. In another with sibilant râle throughout the chest, with violent febrile reaction threatening serious capillary affection, a timely emetic prevented effectually the occurrence of the subcrepitant form.

The respiratory obstruction of this disease is due to two co-operating causes, bronchial inflammation and muco-purulent exudation in the air-tubes, but death is not so much the result of the inflammatory process, as of the products of that process. This is equally true as a general rule, of other acute bronchial and pulmonic affections, as membranous croup, pneumonitis, and pleuritis.

Patients rarely die in the simple primary stages of these affections when the inflammatory action is most intense, but generally after exudation has occurred, and exerted its depletive influence on the local and general conditions, and affords a direct mechanical obstacle to respiration. The inflammation of capillary bronchitis will usually pursue a tolerably definite course towards resolution, provided the bronchia are kept sufficiently clear of its products to relieve respiration.

The quantity of this matter daily rejected either by vomiting or cough, including that swallowed and passed through the intestinal canal in bad cases, amounts often to several ounces.

Thus, while inflammation may be in great part subdued, and fever abate, the patient may as certainly succumb to the more transient obstruction, and expire in a state of apnœa. Consequent to this obstruction, a long train of passive venous engorgements is set up, beginning in the lungs, and extending back through the right cavities of the heart, the large veins, brain, and even abdominal organs. In the brain engorgement was manifested by stupor, occasional convulsions, puffed and swollen countenance, distended jugulars, and dilated pupils; and in the abdominal organs, by enlargement of that cavity, tenderness on pressure, and hepatic torpidity. The right cavities of the heart being greatly overdistended, and the left imperfectly supplied with blood, the action of the organ is seriously impaired and laboured, but rapid and deficient in force. As the mechanical obstruction increases the cardiac sounds decline, and the impulse becomes feeble. In very bad cases it was noted that the interval between the two sounds almost if not entirely disappeared. The prompt action of an emetic in this state of affairs was, at any stage of the case, singularly effectual in relieving the pent-up venous blood, and restoring the arterial circulation. The continual presence of muco-pus in deficient expectoration not only sustains engorgement and inflammation, by interrupting arterialization, but may also undergo partial decomposition, becomes acrid, and induces erosion, ulceration of the mucous surfaces, and the formation of minute abscesses, and is usually attended with extremely fetid breath. Occasional emetics will remove this decomposing mass, and prevent local and general mischief.

In a case of an infant who had passed into the collapsed stages from neglect, and was almost pulseless and insensible, the ipecac in four grain doses, given in liberal portions of warm brandy every fifteen minutes, caused active vomiting, copious rejection of mucus, and reaction. In all cases where fever and inflammation continued after the operation of an emetic, the ipecacuanha, given at intervals in quantities not sufficient either to nauseate or vomit, was found the most effectual means of reducing the latter condition, without impairing the vital energies, while it gradually diminished morbid secretion. But children with this affection will often tolerate large quantities of this drug for many days without nausea, and reap the full benefits as an alterative on the local disease. This tolerance will be found to depend very much on the degree of cerebral and portal congestion. Thus, cases with cerebral congestion and much stupor, and large tumid abdomen, tolerated as much as five grains every two or three hours, for two or three days, with decided benefit. Given in this way the ipecac neither produces nor leaves permanent gastric derangement, but rather prepares the digestive organs for an early resumption of their proper offices. In certain cases with very irritable stomach, very minute doses proved anti-emetic and corrective of gastric disorder.

In that dangerous class of cases attended with deficient or suppressed cough, and where the prostration was such as to forbid the too frequent repetition of emetics, ipecac in minute portions, combined with quinia and alcoholic stimulants, proved the best means of stimulating the paralyzed and dilated bronchia to throw off their contents and of averting apnœa. The sulphate of quinia in combination with the ipecac was used in about two thirds of the cases treated. It was found to exert a threefold influence : one as a sedative on that inordinate disturbance of the nervous system observed in the form of excessive restlessness, and delirium ; secondly, on febrile action whether remittent or continued in type as a febrifuge ; and thirdly, on that unbalanced state of the circulation already alluded to, and witnessed in the overloaded venous system and deficient arterial circulation characterized by cool extremities, livid complexion, and mental stupor, as an active tonic, and regulating agent on the disordered circulatory system. It was also observed that the febrile action yielded more readily with the quinia than without it. In several instances where fever had obstinately continued for many days, it was added to the treatment with decided advantage. When the type of fever was active and continued, the effect of the quinia and ipecac was to convert it into a remittent form, then to induce distinct intermissions, and finally entire subsidence. In certain cases after a partial reduction of inflammatory action, the system seemed prone to pass into a state of obstinate and habitual febrile excitement of a remittent form, which reacted injuriously on the local affection. For this peculiar condition, the quinia was a happy and efficient substitute, for antiphlogistic measures.

Expectorants.—Experience in the use of either anodyne or stimulating expectorants was not favourable. In all the bad cases treated, cough and expectoration were either absent for a time, very slight, or insufficient to relieve respiration. These symptoms generally bore certain definite relations to the state of the nervous centres, the degree of corporeal temperature, and the condition of cardiac force. Thus, a decline in mental or nervous sensibility, from any cause, transient or permanent, impaired both material reduction of temperature, or loss of cardiac force, exerted a similar effect. The presence of venous blood in the left cavities of the heart, and arterial circulation, by toxæmic action on the nervous system, tended effectually to suppress both cough and expectoration. When this tendency existed, the more stimulant expectorants failed to correct it, but those remedies which aroused the energy of the nervous and reflex functions, and the contractile powers of the bronchia, were the most efficient. For this purpose, warmth to the surface, quinia and brandy in addition to the ipecacuanha in minute doses, rarely failed to give prompt relief. In this way the progress of infantile capillary bronchitis is constantly subject to sudden and extreme changes, which are not so much due to variations in the character of the inflammatory action, as to the influence of the shifting states of the nervous system, either from morbid, or other causes over the reflex functions of respiration, and the expulsive capacity of the air-tubes. The intimate association between the brain, medulla, and lungs, is often interrupted by the slightest causes in the delicate constitutions of children, which are productive of dangerous suppression of cough and expectoration. Thus, any neglect in supplying proper nutriment, or artificial heat when necessary, excessive catharsis, even mild anodynes, or moderate depletion, by acting injurously on the nervous system, and heat generating powers, tended to produce this result.

In every case with a single exception, cataplasms combining warmth and moisture in a high degree, regardless of the state of temperature, were applied constantly to and around the chest, and over the abdomen when enlarged and distended. They were among the most efficient means of promoting expectoration and alleviating the painfulness of cough. As stimulants of vital action in enfeebled circulation and embarrassed action of the heart, they were valuable, and by promoting the activity of the cutaneous circulation, they afforded great relief to internal congestion, cerebral and pulmonic oppression. When febrile reaction was high they constituted the safest, most certain, and efficient sudorifics in our possession.

Occasional moderate cathartics were used, not for depletion, but to prevent constipation and relieve portal engorgement. Of the twenty-one cases, twenty were treated exclusively by the above method, and all recovered. One, treated mainly by expectorants, diffusible stimuli, and counter-irritation, was lost.

Art. VIII.—*The Effects on the Cerebral Circulation of Large Doses of Bromide of Potassium.* By Wm. R. Whitehead, M. D., of New York, Physician for Diseases of Women at the North-Western Dispensary, etc.

That the bromide of potassium, in moderate doses, should be considered eminently suitable in sthenic cerebral affections would be logically inferred from the experiments of one of the most judicious of observers, M. Martin

Damourrette, who has shown that the action of bromide of potassium produces contraction of the capillaries and subsequently dilatation of these vessels.[1]

At present the therapeutic use of the bromide of potassium is largely predicated upon its supposed property to diminish the supply of blood to the brain, and that irrespective of the dose. This view has been supported by experiments by Dr. Wm. A. Hammond, and possibly by others. He has informed us, in a valuable paper published in the *Psychological Journal* (Jan. 1869), that he "has administered this substance to dogs whose brains he had exposed to view by trephining their skull, and that he has invariably found it to lessen the amount of blood circulating within the cranium, and to produce a shrinking of the brain from this cause." Such experiments apparently accord with the occasional therapeutic effects of this medicine. There are, however, toxic effects of intracranial congestion produced by the bromide of potassium to which possibly attention has not been called in a prominent manner, and such is the object of this brief article. Recently the servant who attends to my office brought to me a small wire mouse-trap containing six mice which had been caught in the basement. I retained them with a view to determine the effects upon them of the subcutaneous injection of carbolic acid. Two of them being subjected to the action of rather a large dose of this substance without appreciably deleterious effect, I reserved them for further experimentation, and proceeded to try the effects of bromide of potassium on the remaining four. The following are the results of experiments on the six mice first caught, and on others subsequently entrapped :—

Expt. 1.—July 16th, 1870. A mouse had fifteen drops of bromide of potassium (twenty grains to a half drachm of water) injected subcutaneously. Bit violently at things within its reach ; had tremor, and died almost immediately.

Expt. 2.—Five drops of the same solution were injected subcutaneously into the back of another mouse : Increased activity, frisky, bites at its own tail, and at other things ; activity continued for two or three minutes. This mouse's tail was cut to distinguish this animal from the others, and it was turned loose in the cage. Gradually became quiet, and after a minute or two was observed to be dead.

Expt. 3.—Five drops of the same solution were injected into the third mouse : movements active at first, bites at others with vigour ; convulsive movements in posterior extremities ; death in five minutes.

Expt. 4.—Five drops of same solution injected into fourth mouse : bites at things about it, and at its own tail ; gnaws at the throat of first mouse killed so as to draw blood, not apparently to quench thirst, but from an irresistible propensity to bite. Gradually more quiet ; death in about five minutes.

Expt. 5.—The two mice which had received injections of carbolic acid had entirely recovered, and were very active. They were decapitated, and the outside coverings of the skull of each removed. There was no intracranial congestion, and the blood which dripped from their necks was bright red. The four mice which had been poisoned with bromide of potassium each had their heads cut off, and the skin stripped from the cranium. The longitudinal and transverse sinus of each was distended with black blood, and the skull of each was darkly congested. On dividing the skull longitudinally there was an accumulation of dark blood between it and the brain. The blood which dripped from the necks of these mice was black. The degree of congestion varied somewhat, and the brain tissue itself did not, except possibly in one case, seem to offer any appreciable congestion. The peripheral portion of the brain, or rather the pia mater, was markedly congested, and contrasted singularly with that of the two mice which had not been subjected to the poisonous action of bromide of potassium.

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[1] Études Expérimentale sur l'action physiologique du bromide de potassium. Par MM. Martin-Damourrette et Pelvet, Bulletin Général de Thérapeutique, pp. 251 and 252, 1867.

Expt. 6.—July 18th, 1870. A mouse caught to-day had five drops of the same solution of bromide of potassium injected into the cellular tissue of the back. Affected like the others by biting at different things; very active, more than before the injection. In two minutes commenced to be quiet: was seized immediately with forceps, dragged from cage, and head cut off with a pair of sharp scissors. Skull not congested but of natural colour. The pia mater was pale. The head of this mouse was cut off before the toxic effects of the bromide of potassium had become manifest.

Expt. 7.—July 20th, 1870 Two mice caught to-day were subjected to the following comparative experiments: One mouse, a full grown and vigorous one, received an injection of five drops of the same solution of bromide of potassium (forty grains to the drachm), which killed it in five minutes. The eyes were projecting, and the palpebral fissure remained dilated; scalp being torn off from the skull, it was darkly congested; marked intracranial congestion, peripheral and affecting the pia mater; blood was black; liver dark and congested; kidneys also congested.

The other mouse, younger and smaller, received an injection of five drops of the same solution. In two minutes, and just before the sedative effect of the drug began to appear, the head of this mouse was cut off. The eyes were not projecting; the palpebral fissure was closed; the blood which dripped from the head was bright red, and not black, as was the case with its mate, and there was no intracranial congestion. Liver very pale, kidneys not congested.

Expt. 8.—Five drops of the same solution were injected into the cellular tissue of the back of an old mouse: during a minute increased activity, then the animal commenced to be unsteady on its legs, turning around and moving about with a slow and staggering gait. On being seized with forceps by the tail and dragged from the cage, was again very active, and tried to bite my hand. Two minutes and a half from the time of the injection the head was cut off. Intracranial congestion very marked; blood venous; pia mater very darkly congested. This mouse was kept twelve or fifteen hours longer in the cage than the others, and without nourishment. The animal came rapidly under the influence of the toxic effects of the bromide of potassium, because in little more than a minute it became staggering in its gait. When seized by the tail with the forceps and drawn from the cage, probably the hope of escape stimulated this mouse to greater activity.

I do not wish to attach undue importance to a few experiments on mice quite easily performed by any one; but there are, however, sometimes, as in this case, physiological straws which may point the way to more complete and extended experimentation.

There is no remedy which deservedly enjoys a higher repute than the bromide of potassium. In sthenic forms of headache, and in a number of conditions intimately associated with uterine complaints this substance is invaluable, and an extended experience of it in these circumstances has thoroughly established my faith in its efficacy. But I am convinced that the bromide of potassium, like many other valuable remedies, is occasionally incautiously used. The indications for its administration would at first sight appear very plain should the physiological dogma concerning it invariably obtain, namely, that the bromide of potassium diminishes cerebral congestion. It is necessary to add, I think, that this remedy also produces cerebral congestion. The enormous doses which are sometimes given should excite the fear that an opposite effect from that intended might be induced, and that rapidly, especially in view of the experiments which I have adduced.

The gist of this article then is to record my belief that the bromide of potassium should be given only in moderate doses to obtain the full therapeutic effect for the relief of cerebral congestion ; that the primary action of this substance is to diminish the amount of blood circulating within the cranium, but that subsequently, and particularly in very large or toxic doses the opposite obtains ; in other words, that intracranial congestion is induced. Indeed, I am inclined to believe that the *sedative* effects of the medicine are always attended with more or less cerebral congestion.

Dr. Hammond has not given us a detailed account of his interesting experiments on dogs in the article to which I have already referred, neither has he told us the condition of the cerebral circulation as an *ultimate effect* of the bromide of potassium. Further experimentation is needed to clear up this subject thoroughly, and I know of no one who is more eminently qualified to settle the matter by that mode than the author of the experiments above referred to.

NEW YORK: 23 FIFTH AVENUE, July 25, 1870.

ART. IX.—*On Congenital Phimosis.* By JOHN H. PACKARD, M. D., one of the Surgeons to the Episcopal Hospital, Philadelphia.

PHIMOSIS is defined by Dunglison as "a disease which consists in a preternatural narrowness of the opening of the prepuce, so that it cannot be carried behind the corona glandis." He further says: "This affection is most commonly congenital; sometimes it is accidental, and dependent upon tumefaction of the glans, or of the prepuce, as occurs in syphilis."

But the inquiry—what is the normal prepuce?—if followed out in adults only, is one of some difficulty. We find some men with the glans wholly exposed; others with its anterior portion uncovered, and a large number with a prepuce which forms a complete sheath. Occasionally we meet even with a redundancy of tissue, giving the end of the organ the appearance usual in children. It need hardly be said that part of the difficulty lies in the delicacy of the investigation except where the parts are exposed either in surgical examinations or in the dissecting-room ; and in the frequent uncertainty whether operative interference may not at some time have been resorted to, in cases admitting of direct study.

Upon consulting anatomical authors, we find that for the most part they describe the prepuce as covering the glans. Malgaigne,[1] however, says: "Sometimes it (the glans) is habitually covered by the prepuce; sometimes, either by congenital formation, or as the effect of circumcision, it is exposed." And Cruveilhier:[2] "The length of the prepuce varies in different individuals; in some, extremely short, it covers only the posterior half or third of the glans."

In the nude statues by ancient sculptors, whose correct knowledge of anatomy in other respects would seem to warrant citing their authority in this, the prepuce is always represented, so far as I know, as covering the glans.

I have myself recently examined and noted 172 cases, between the ages of 12 and 73 years, and found that—

The glans was covered, in	63
" " partially covered, in	39
" " exposed, in	70
	172

But of these 45 were, or acknowledged themselves to have been, affected with venereal disease of some form or other, and between these two classes, the venereal and the non-venereal, existed the following difference, which, I confess, surprised me not a little by its marked character:—

NON-VENEREAL SUBJECTS.

Covered,	Partially covered,	Exposed,	
42	23	62	= 127

VENEREAL SUBJECTS.

Covered,[3]	Partially covered,	Exposed,	
21	16	8	= 45
			172

I am indebted to Dr. F. F. Maury, of this city, for a statement of the condition noted in 106 cases of adults, treated by him for various venereal diseases, as follows:—

The prepuce was long in	37
It was of medium length, a portion of the glans being exposed, in	58
It was short in	11
	106

(Two of the eleven were Jews, and had been circumcised.)

In children the condition met with is much more uniform. By the kindness of Dr. Brinton I have been permitted to examine 64 boys in the wards of the Philadelphia Hospital, and Dr. H. C. Hand, resident physician, has supplied me with 34 additional cases from the same source, making 98.

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[1] Anatomie Chirurgicale, tome ii. p. 414.

[2] Anatomie Descriptive, tome ii. p. 745.

[3] I include in this two who had been operated on for phimosis after contracting disease.

Of these 98,

The glans was completely covered, in	93
" " uncovered, in	4
" " one-half covered, in	1
	98

Of the 93 in whom the glans was covered,

The prepuce was entirely retractible, in	36
" " partly retractible, in	3
" " entirely non-retractible, in . . .	54
	93

From these cases it appears that the normal, or at least the usual condition in childhood, is that the glans should be covered, and that in more than half the cases (54 to 39 = $58\frac{2}{31}$ per cent.) the orifice of the prepuce is too narrow to allow of its retraction so as to expose the glans.

One word as to the ages of the boys examined. They varied from one week up to 16 years. Of the four in whom the glans was not covered, one was five weeks old, the others 7, 9, and 14 years respectively; there was some reason to doubt whether an operation had not been done on the one nine years old. The one in whom the glans was one-half covered was four years old. It would seem, therefore, as if the conformations as noted were irrespective of exact age.

Now since the rule in adults certainly is that the prepuce, if it covers the glans, is readily retractible, it is obvious that in the process of growth the prepuce becomes relatively larger or widens at its orifice, for if nature did not do this, art would have to be resorted to in order to render coition possible, or to obviate the suffering produced by erections.

Moreover, I have had direct testimony from several reliable sources in regard to this change, the experience of my informants being that, as boys, they could not retract the prepuce, but that at some stage of adolescence they found that this had become possible.

It cannot then be questioned that in many instances congenital phimosis exists without producing any symptoms, and disappears spontaneously at or before the period of puberty. We must even believe that in some cases the change is from complete concealment to entire exposure of the glans, since the former state of things is relatively so much more common in childhood, and the latter in adult age. Indeed several of the men examined by me, in whom the glans was wholly exposed, told me that in childhood it had been covered by the prepuce; others said they could not remember anything about it. Let us now briefly glance at the troubles which may be caused by the infantile condition.

In the first place, urination may be interfered with.

Case I.—About a year ago I attended a lady in her second confinement; on the second day the nurse called my attention to the fact that the child, a large fine boy, had passed no water, and was quite uneasy. On examination, I found the prepuce very long, and quite incapable of retraction, the orifice being so small as scarcely to admit a fine probe. Warm fomentations to the hypogastrium having failed to give relief, on the third day I performed circumcision, and the bladder instantly emptied itself.

Uneasiness before micturition may be very troublesome.

Case II.—Several months since I attended a lady with her fourth boy. Two of those previously born had required slitting up of the prepuce, and this one, when a few weeks old, showed great uneasiness before each act of micturition. Finding that the prepuce was a long one, I carefully stretched the edges of the orifice, and by gentle force succeeded in completely exposing the glans. Extensive adhesion, at one point very firm, existed between the two mucous surfaces on the dorsum; this, however, was overcome, and by constant care, and anointing the parts, the recurrence of the difficulty was prevented.

I believe that sometimes, at least, the suffering produced by congenital phimosis is mistaken by mothers and nurses for colic, and that whenever a male infant has frequent attacks of crying without obvious cause, and particularly if they occur about the times of the child wetting the diaper, the prepuce should be carefully examined.

From the accumulation of urine and of smegma beneath the prepuce, active irritation may be set up; authors have even mentioned calculous deposits as met with in this situation.[1]

I have twice had patients under my care who had adhesions between the prepuce and glans, so extensive as to require actual dissection. One was a boy æt. about 10 years, the other a gentleman of 28. It seems to me probable that this condition was in both cases the direct result of irritation of the lining membrane of the long prepuce.

Boys who are the subjects of congenital phimosis begin at a very early age to pull at the prepuce, and this habit, if continued, as it will be unless sedulously counteracted, is very apt to pass into that of masturbation.

Another very troublesome symptom, which, I believe, may be promoted, if not caused, by phimosis, is nocturnal incontinence of urine. Favoring this idea is the fact, developed by Dr. Hewson in a valuable paper on enuresis,[2] that out of 63 cases the prepuce was elongated in 46. It is not stated of any of the 63 that the glans was exposed; masturbation was either confessed to by, or proven of, 17. No other allusion to this point has ever met my eye in print.

Many of the symptoms of stone in the bladder may be caused by phimosis alone. Twice within twelve months I have been called upon to attend such cases; one of the boys was three and a half years of age, and the other six. In each the only symptom of stone that was wanting was hæmaturia, and both regained perfect health upon the removal of the redundant prepuce.

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[1] See Nélaton, Elemens de Pathol. Externe, tome v. p. 659.

[2] Transactions of the College of Physicians of Philadelphia, Am. Journal of the Med. Sciences, Oct. 1858, p. 383.

The question may now be discussed—In what cases of phimosis ought surgical procedures to be adopted?

It seems to me plain that if this condition is noticed during the first few weeks after birth, the manipulations spoken of in Case II. ought to be employed, and will probably obviate the necessity of anything more formidable. If not, and especially if any of the symptoms before detailed are present, circumcision, or at least slitting up or dilatation of the prepuce, should be performed. Holmes[1] says, "Indeed, in any case where it is doubtful whether the prepuce is not too long or too narrow, the operation should be performed;" and gives as the reasons, the risk of uncleanliness, of paraphimosis, of irritation of all kinds, and in later life the danger of venereal infection, as well as of malignant disease.

J. Cooper Forster[2] advises circumcision, "not only to relieve the present symptoms, but also because this operation, by exposing and hardening the glans, and facilitating cleanliness, diminishes the risk in after-life."

Erichsen[3] says: "I think that all cases of congenital phimosis in children should be operated upon, with the view of preserving the health and cleanliness of the parts in after-life."

Nélaton[4] does not speak of congenital phimosis except in reference to severe symptoms induced by it, but he mentions the operation as of slight severity ("*peu grave*").

Gross[5] speaks of phimosis as requiring attention, not only on account of cleanliness and comfort, but lest copulation should be interfered with.

There is therefore no inconsiderable weight of surgical authority in favor of operating in all cases.

On the other hand, Chelius[6] says: "In children this operation is only called for when there is complete closure of the prepuce, or the congenital phimosis is to such degree that it prevents the discharge of the urine."

I would suggest that the true course is between these two extremes, and that here, as elsewhere, every case must be studied by itself. Should any symptoms whatever, either directly or indirectly connected with urination, be presented in a male child, the prepuce should be examined; if it is found to be long, narrow, and non-retractible, measures may be taken to correct this state of things. The tables given above of the results of my own and Dr. Maury's examinations, as well as facts previously known, would seem to show the importance of exposure of the glans as a preventive of venereal disease; but whether it is justifiable to look so far into the future and provide immunity against the results of impure conduct, is perhaps a question for a moralist rather than for a surgeon.

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[1] Surgical Treatment of Children's Diseases, p. 186. London, 1869.

[2] On the Surgical Diseases of Children. London, 1860, p. 194.

[3] The Science and Art of Surgery, vol. ii. p. 668. London, 1869.

[4] Op. cit., tome v. p. 657 et seq.

[5] System of Surgery, vol. ii. p. 814, 1866.

[6] System of Surgery, by South. American edition, vol. iii. p. 55.

We have, lastly, to consider the mode of dealing with such cases as require operation. Manipulation, as before remarked, will often answer every purpose. To aid in its performance, expanding forceps have been devised, to be introduced between the glans and prepuce with the blades closed, when, by bringing the handles together, the blades are opened to a degree regulated by a small screw near the joint, and the orifice of the foreskin is forcibly widened.[1]

Mere slitting up of the foreskin upon a grooved director, carefully inserted beneath it along the dorsum of the glans, in the median line, is the simplest plan, and perfectly effectual; and although for a long time the flaps thus left are very unsightly, they are rounded off by absorption in the course of time, and before puberty the organ becomes symmetrical.

Dr. M. H. Henry, of New York,[2] proposes the use of a director having its groove filled with lead, in which the point of the bistoury may be securely engaged. Various other instruments, scissors, knives, forceps, &c., have been at different times devised for the greater readiness and safety of performing this little operation.

I am permitted by Dr. Hays to mention here a procedure which was adopted by him in the case of an adult, and which might be found equally successful in the young subject. A gentleman contemplating marriage had a non-retractile prepuce, and wished to have it operated on by Dr. H. at his office and not at his own house. Dr. Hays drew back the prepuce as far as possible; introduced the probe-pointed blade of a pair of scissors between the glans and prepuce; nicked the dorsal edge of the latter, and continuing to draw back the prepuce, he extended the incision in the mucous membrane as that part became exposed, until the prepuce was entirely retracted and the glans uncovered. A rag anointed with cerate was then wrapped around the glans, which, by its bulk, prevented primary union of the wound. The prepuce was then replaced as the most convenient mode of keeping the dressing in place, for the patient insisted upon attending to his business. He had no subsequent trouble.

To obviate even the temporary deformity, before spoken of, the flaps may be cut away with scissors; or, which is a better plan, and the one I always adopt, the redundant tissue may be engaged in the cleft handle of a director, and sliced away in front of it; an additional slit being made along the dorsal portion if the glans is not wholly freed by this first cut. Severe hemorrhage is rarely met with, but if it does occur, it must be controlled by fine ligatures.

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[1] Cruise, Dublin Quarterly Journal of Medicine, November, 1869.

[2] American Journal of Syphilography and Dermatology, April, 1870.

The sutures recommended by some authors to keep the mucous membrane and the skin accurately adapted, do not seem to me to be necessary, although they are easily applied while the child is in a state of anæsthesia, and their subsequent removal may be accomplished without any pain worth speaking of. Cold water is the best dressing to apply to the parts.

In conclusion, I would say that in cases of phimosis in the adult, when chancroids exist beneath the prepuce, I never hesitate to slit it up. The extension of the specific ulceration may be prevented almost wholly, and even if it could not, this disadvantage would be more than counterbalanced by the opportunity given for direct application of remedies to every part of the diseased surface.

1415 SPRUCE STREET, August 24, 1870.

ART. X.—*Prognosis in Mental Diseases.* By I. RAY, M.D., of Philadelphia.

IT will hardly be questioned, I think, that notwithstanding the large contributions to our knowledge of insanity that have been made of late years, our prognosis in that disease is still singularly uncertain. A striking proof of it is that in most of the formal treatises no special reference is made to it whatever, while in the few others a page or two comprises all that the author is prepared to offer. Even such a close and extensive observer as Esquirol found a couple of pages sufficient for all the information he had to impart. When we consider these things in connection with the frequency of the disease and the abundant opportunities for observing it, they would seem to be not very creditable to the sagacity or accuracy of the observer. This may be so in some degree, but the inherent difficulty of the subject will sufficiently account for much of the imperfection that now attends our prognosis. We are without those means for revealing to the senses the pathological condition of the organ affected, which aid us so effectually in the investigation of other diseases. Incased in its bony envelope, no arts of percussion or auscultation can make it give up its secrets to the touch or the ear, and no ingenious device of electro-magnetism will show the derangements of its circulation. Indeed, in the present state of our knowledge respecting the intimate structure of the brain, and especially of the changes it undergoes when affected by disease or tendencies to disease, even more efficient helps than these would avail us but little. Nor could we expect much from the most elaborate exposition of numerical results, for they are wanting in the necessary precision and simplicity. The attempts of this kind already made in what are called the statistics of insanity have signally failed to elicit much real information, though confined to a coarser and more appreciable order of facts. We are obliged to rely, therefore, on those incidents that press on our notice, trusting to thorough observation and a happy sagacity to learn as far as possible their true significance. Those general impressions which such experience leaves, deficient as they may be in exactness and demonstrable certainty, are, nevertheless, precious sources of information, worthy of being preserved in durable shape. Let every one contribute his share to the common stock, and in the fulness of time we may have the materials of a reliable prognosis in mental diseases. With this end in view, I propose to communicate the results of my own particular experience, excepting such as obviously confirm the prevalent and generally-accepted belief.

In any disease the chances of recovery are learned from simple observation of results, our present object being to ascertain the grounds on which we may predict a favourable or an unfavourable termination. In the outset, then, we are obliged to admit that in a very large proportion of cases we are unable to perceive any such grounds. Circumstances that seem to promise the strongest resistance to the triumph of disease may not prevent the worst result, while in many a case recovery occurs where everything seemed to be against the patient. Thus our conclusions are rendered negative rather than positive. Instead of saying that certain incidents or conditions indicate recovery, we are too often obliged to content ourselves with saying that this or that incident or condition may not prevent it. But negative results are better than none, and this must be my excuse if in many instances I say what a thing does not, rather than what it does, signify.

It is now generally agreed that in a case of insanity occurring after a brief incubation, the bodily health tolerably good, and the constitutional powers unimpaired by previous disease or improper habits, the chances are in favour of recovery; in other words, that more than fifty per cent. of such cases recover. And this, I believe, is about as exact a statement of the proportion of recoveries as can well be made. The number discharged from our hospitals as recovered, ranges, one year with another, from forty to fifty per cent. of the whole number discharged. But it must be considered that, in all probability, if some of these had been retained a little longer, it would have appeared that the apparent recovery was only a temporary improvement. On the other hand, these are more than offset by those who would have been discharged as recovered, had they been suffered to remain sufficiently long. Some twenty-five or thirty years ago, we often saw a much larger proportion of recoveries reported than this, and that, too, without mistake or deception in the matter. Unquestionably the physical condition of the inmates of our hospitals was better at that period than it is now. Of late years the number of those whose native vigour has been sapped by excesses of one kind or another, and who are suffering from cerebral lesions not supposed to exist in proper insanity, has been steadily increasing. These cases add to the mortality, and diminish the proportion of recoveries. Taking the curability of insanity as here estimated, let us see how it is affected by certain conditions, incidents, or symptoms.

An attack which is developed within a few weeks is far more likely to recover than one that had its beginning years before, and has been advancing by slow but steady progress. In the latter case the organic change, though slight, seems to have become firmly fixed, and to have acquired the strength of a congenital defect; while in the former the restorative energies of nature are called into exercise promptly, as if by the very suddenness and violence of the morbid movement. Some have regarded this circumstance as so favourable, that they ventured to predict recovery, where it exists, as confidently as they would in a fit of hysteria. This, surely, is not warranted by the results of observation, which show that many a patient whose conditions, apparently, are as favourable as possible for recovery, passes into the chronic stage, and becomes incurable. This is one of the problems that have defied every attempt at solution, and mark the narrow limits of our knowledge. Of course it is to be understood that our diagnosis is correct—that we do not mistake for mania some other cerebral affection. It is well known that some of them very strongly resemble the acute stage of mania, and especially is it so with that form of disease first described by the late Dr. Bell,[1] of the McLean Asylum, and which, for that reason, I took the liberty of designating by his name. Notwithstanding his clear and copious description, cases not unfrequently occur in regard to which one is obliged for a day or two to suspend judgment, and be governed at last, perhaps, less by any definite condition or symptoms than by that *ensemble* of appearances which, however satisfactory to the observer himself, does not admit of description. As this form of disease is pre-eminently dangerous to life, we must refrain from giving a favourable prognosis until quite sure that we are not dealing with some other form of cerebral disease than that of acute mania. The same caution is necessary in regard to that other form of mental disease, so closely resembling mania, which has become so common in our hospitals for the insane. I refer to what used to be called, universally, general paralysis, but which has recently received the better name of paresis. Physicians in private practice, not very familiar with the aspects of mental disease, are very liable to confound this with mania, and, because the mental derangement is something less than that of raving, to offer a favourable prognosis.

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[1] American Journal of Insanity, iv. 97.

It is a common impression that hereditary insanity is less curable than that which is not so. That there is some ground for this impression is not to be denied, but the better notions that have begun to prevail respecting this character of insanity oblige us to receive it with many grains of allowance. Where the hereditary transmission is witnessed only in the production of an attack, the mental manifestations not having been otherwise distinguished by singularity, or deviations from the conventional standard, I have seen no reason to believe that it diminishes the curability of the attack. Not so in that large class of cases where the transmitted agency has profoundly affected the normal constitution of the mind, producing, in the highest degree, what has been aptly termed the insane temperament, and, in a less degree, the various shades of eccentricity. Here the full development of unmistakable, overt insanity is but the last stage of an abnormal process which began with the beginning of life. Entire recovery is out of the question, and the best event we can expect is only a temporary remission—an abatement of the severity of the disordered manifestations. Those who have had no such antecedents—whose conduct and conversation have evinced no deviations from the ordinary standards of correctness—quite as readily recover as others. They are more liable, no doubt, to recurrent attacks, because the hereditary vice is an additional cause of disturbance. Allow me to say, in passing, that whoever, guided by the spirit of a true philosophy and the light of a broad and exact observation, shall thoroughly investigate the hereditary transmission of cerebral qualities, will make a contribution to our knowledge of insanity more valuable than any single one it has ever received.

Different forms of insanity also differ in point of curability, and this fact must be taken into account in giving our prognosis. To the inexperienced observer, the dull, listless, apathetic aspect of the subject of acute dementia suggests the most dismal prospect; but when it is not the sequel of falls or cerebral lesions, it is really no less curable than acute mania, under a parity of circumstances. Perhaps it is more so. Recovery may be longer delayed—for the most part it probably is—but it is no less certain and complete.

In that form of mental disease called circular insanity, consisting of alternate excitement and depression, separated by an apparently healthy interval, these different periods continuing weeks, months, or years, our prognosis must always be unfavourable. In all my experience I cannot call to mind a single complete recovery after the vicious cycle had been clearly established. Sometimes the transition periods are considerably prolonged, and thus encourage the expectation that the other phases of the disease will never return. Time only is needed to show that such hopes are delusive. Sooner or later the patient becomes excited and depressed, and so the morbid series is continued. I would not have it understood that a single series of these movements is sufficient to constitute the form of disease in question, because more or less excitement, or more or less depression, accompanies every case of mania. Whatever other trait of the disease is wanting, this is never absent, and in a large proportion of cases both are present, the one succeeding the other. We are not, therefore, to infer too hastily that a periodical manifestation of these conditions in the early stage of the disease, necessarily indicates the presence of circular insanity.

The curability of puerperal mania has been very differently estimated by different writers, in consequence of overlooking the fact that it appears under several very different forms. When the disease occurs shortly after delivery, and is attended with high fever, extreme restlessness and jactitation, and chaotic disturbance of mind, the danger of life is imminent, and by far the larger number of patients die. If they survive, the body and mind generally recover *pari passu*. Dr. William Hunter has very sententiously expressed a similar opinion. "When out of their senses," he says, "attended with fever like paraphrenitis, they will, in all probability, die; but when without fever, it is not fatal." When there is little or no fever, and the mind remains coherent and rational to some extent, there is little danger of death, and we may prognosticate recovery of reason with as much confidence as in any description of mental disease, especially if the vital powers are not seriously impaired by previous ill health or other deteriorating influences. When, on the contrary, the patient has been reduced by hard work, early and frequent childbearing, or disease of one kind or another, the chances of recovery are much diminished. The subjects of puerperal insanity thus characterized are rapidly increasing among us, owing to the greater prevalence of all those incidents that impair the energies of the female constitution, and thus become an efficient agency in the development of puerperal insanity; and the fact should render us cautious how we venture on a prognosis before making a careful investigation of all the antecedents of the case.

Mania accompanied by homicide has been generally regarded, in this country at least, as a very intractable form of disease, but I am inclined to doubt the correctness of the opinion. It probably arose from the fact that when the State hospitals were opened, one after another, a large proportion of the patients received from the jails and poorhouses were of this description, having been kept year after year in those receptacles, on account of their dangerous character, when otherwise they would have been cared for by their friends. These were the cases that had become chronic, and they conveyed no idea of the number of those that had recovered and been discharged from confinement. That the greater part of such patients should pass into the incurable state is not surprising, if we consider the management to which they were subjected. Regarded as they were with great apprehension, they were very closely confined, often in cages or dark rooms, seldom if ever allowed to go out of doors or even to look upon the face of nature, and, worse than all, exposed to the gaze of idle and thoughtless people whose comments were not much calculated to excite a train of healthy reflections. Still, after making all due allowance for this source of incurability, there are unquestionably some circumstances in these cases well fitted to reduce the proportion of recoveries somewhat below the average. In most of them the homicidal act is the offspring of strong delusions, indicating probably the severest grade of cerebral disorder short of obvious organic lesion. And in those cases where the act was prompted by some sudden impulse, or that confusion and perversion of ideas common in acute mania, it is not improbable that every restorative movement may be repressed by the perpetual consciousness of the terrible deed. Patients of a low grade of intellect seldom become competent to view such acts in the true light, however rational they may be in other respects. They indulge in self-accusation, and wonder they should have been left to do such a thing. It is not strange, therefore, that the sad past, rather than the cheering prospects of the future, should wait on every attempted return of reason, and drive it back into the region of clouds and darkness. Still, there are recoveries in this form of insanity—enough to deter us from giving an unfavourable prognosis in every case.

In pure monomania, the more circumscribed the delusion the smaller is the chance of recovery, and the chance is the smallest in cases that have had a long incubation.

Insanity produced by masturbation does not admit of a hopeful prognosis. In fact, it is generally incurable, chiefly for the reason, probably, that the cause is steadily maintained. When the disease has advanced so far as to involve very deeply the mental powers, and deprive the patient of all self-control, there can be no reasonable hope of recovery; at least, I never saw a case of recovery under such circumstances. On the other hand, if the patient is within the reach of appeals to his higher nature, and is capable of refraining from the pernicious practice, then we may predict recovery with some degree of confidence.

It has long been a well-settled fact that insanity accompanied by epilepsy is completely incurable. It is no less true that all convulsive affections indicate serious disorder and render our prognosis unfavourable. Reason is never restored and death is imminent.

The condition of the menstrual secretion is not without some importance as a ground of prognosis, although in this respect, it has been much misunderstood by physicians not very conversant with insanity. When suppressed they have regarded it as an indispensable part of the treatment to endeavour to restore it, and expected, when nature resumed her rights, to see the mental disorder disappear. They must often have been disappointed, but the idea was too firmly grounded in the prevalent pathology of the times to be readily abandoned. Unquestionably, the menses are deranged in a majority of cases, and, generally, previous to the development of the attack. There can be no greater mistake, however, than to regard that as a cause of the disease, which is one of its collateral incidents; or one of those results which, though prior in the order of occurrence to any very obvious disturbance of the mind, have, themselves, been preceded by some earlier departure from the normal condition. Hence, it is not uncommon to see the menstrual function restored, without any corresponding improvement of mind; and the converse phenomenon—that of reason restored while the catamenia remain suppressed—is, perhaps, no less common. I would not be understood to deny that a sudden cessation of the menses while flowing, may be an exciting cause of insanity where the predisposition exists. While, therefore, we should be careful not to expect too much from a return of the menses, we may, certainly, regard it as a ground of hope in reserve. Esquirol says that "when the menses are reëstablished without the return of the mental health, it is to be feared that the disease will become incurable." This fear has not been confirmed by my experience. The return of the menses is indicative of improved bodily condition, and for that reason it makes our prognosis so much the more hopeful. It has often appeared to be one of a series of changes ending in complete restoration, though weeks or even months might be occupied in the process. I have seen more ground for Esquirol's opinion, that, so long as the menses remain suppressed, we may cherish the hope of recovery, especially in the earlier periods of womanhood. It must be admitted, however, that in cases of considerable duration it is but a forlorn kind of hope.

I have never been inclined to think that the chances of recovery are much affected by sex, or time of life, except extreme youth and extreme old age. Insanity occurring several years before the time of puberty, as it occasionally does, is not often cured. Most cases end in death or complete imbecility. The etiology of these cases is involved in great obscurity. In the most of those which have met my attention, it was impossible to arrive at any satisfactory conclusions respecting the agency most concerned in producing them. The parents were free from tendencies to cerebral disease or neuropathies, and the patients had met with no fall or blow, nor been afflicted by any serious disease. The character of the disorder would seem to indicate very grave organic changes in the brain, but I am not aware that this conjecture has been verified by autopsy, which, probably, has been seldom made. Of course, I do not include in this form of mental disorder, that moral perversion which sometimes appears about the time of puberty, and is connected, apparently, with the process of sexual evolution. Cases of this kind always recover when this process is fully accomplished.

That form of insanity which passes under the name of senile dementia, of course, is incurable, but it must be borne in mind that old persons are not exempt from attacks of common mania. I have had no reason to believe that old age is an unfavourable circumstance in such attacks, other things being equal. My impression is that it furnishes its due proportion of recoveries. I hardly need to add that one must be quite sure of his diagnosis before he ventures to prognosticate the issue of the disorder.

In young people, after the age of puberty, the proportion of recoveries is greater than at any subsequent period; and in women it is greater before than after the turn of life.

The turn of life, as well as the restoration of the menses, has been generally regarded, but without sufficient reason, as a promising event in the progress of insanity. They who see the disease on a large scale have little reason to sanction this opinion. In the new order of things which this event inaugurates in the female system, the brain may throw off its morbid condition, and return to its normal state. This event happens just often enough to deter us from previously abandoning all hope from the climacteric period when not too remote.

In cases attended with high excitement, a ground of prognosis may be found in the character of the mental manifestations. When the patient's attention can be arrested, and he is able to understand and to reply to questions with some coherence and correctness, the prognosis is far more favourable, as it regards the chances of his surviving the attack, than when he is abstracted from all outward things, able, scarcely for a moment, to quit his own drifting thoughts, and is entirely absorbed in the chaotic jumble of ideas that possess his mind. This latter form of aberration, whenever it occurs in connection with high maniacal excitement, is an unpromising symptom, because often indicative of the most dangerous kind of cerebral lesion. It is very common, almost universal, in fact, in that form of disease, already alluded to, now so frequent in our hospitals, and passing under the name of maniacal exhaustion, or typhomania, or meningitis, or Bell's disease.

Exaltation, abstractly considered, indicates a more curable form of disease than delusion, or painful apprehensions, unattended with much nervous excitement. Perhaps no form of insanity is more curable than that which is characterized by a brief incubation, and an exaltation of views, feelings, and emotions. Probably it is produced by a smaller departure from the normal condition of the brain, and consequently is more readily cured. Still, simple exaltation is common in chronic insanity. In a large proportion of the old cases in every hospital for the insane, it is impossible to detect a single delusion, or point out a single incident that would be considered in a court of justice as satisfactory evidence of insanity.

In a large proportion of recent cases, the excitement rapidly disappears within the first month, and the patient seems to be completely restored. This seeming restoration departs about as rapidly as it came, for in the course of a few days the patient relapses into his former condition, and generally recovery is not more speedy than in cases not marked by this kind of remission. This fact should render us cautious how we prognosticate an approaching recovery on the strength of this early improvement. In cases marked by the highest grade of cerebral disturbance, recovery sometimes takes place in this manner, but for the most part, the process of restoration is a slow one, occupying weeks if not months. Delusions vanish, one after another; distrust, suspicion, hostility gradually give way to more cheerful and kindly feeling, and the suggestions of reason struggle long and painfully with those of disease.

We sometimes see, in the early stage of mania, high excitement, and, perhaps, the wildest raving, alternately, at short intervals, with tranquillity and tolerable clearness. This might seem to warrant a less favourable prognosis, from the fact that a similar phase of disease is common in old cases, but the actual event, so far as I have observed, does not justify this view. Although it gives no promise of speedy recovery, yet I have been disposed to regard this kind of change as better than a protracted uniformity of condition.

Depression must be regarded as a less favourable symptom than excitement; that is, the chances of recovery are less in cases characterized by depression than in those characterized by excitement, and the inequality increases the longer these conditions exist. In neither is recovery determined by the degree in which the intellectual powers are affected. Depression, accompanied by coherence and continuity of thought, and regard for the ordinary proprieties of life, is no more curable than when marked by extreme agitation and chaotic confusion of mind. A suicidal disposition, so common in these cases, must render our prognosis less favourable, for the reason, probably, that it indicates a grave cerebral lesion. A little depression is not uncommon even in the stage of convalescence, in cases that have been marked by much excitement. The late Dr. Bell used to say it is almost if not quite universal. It seems as if oscillation, more or less, were a law of the cerebral movement, so that after rising above or falling below the normal grade of activity, it, sooner or later, moves in the opposite direction. This fact should be borne in mind in forming our prognosis.

Among the minor incidents of insanity are a few of considerable value as grounds of prognosis.

Generally, in the recent stage, the insane sleep poorly, and though they may sometimes recover the habit of sleeping soundly without manifest improvement, yet this event can scarcely be expected until the sleep is more sound and continuous than it usually is at first; while, therefore, the patient sleeps badly, we are debarred from expecting recovery soon.

Gaining flesh is a very favourable symptom, provided it be accompanied by some mental improvement. When unaccompanied, *pari passu*, by such improvement, it is generally the precursor of a rapid deterioration of mind. In all forms of mental disease, involving decided organic lesion, like general paralysis and other cognate affections, a full, florid, robust physique is not uncommon, and should not induce us to render our prognosis less unfavourable. In these subjects there sometimes occurs a rapid loss of flesh, and then it is the precursor of approaching dissolution. In this form of cerebral disease there sometimes occurs, in the early stage, a decided mental improvement, on the strength of which the patient may be released from the hospital. That friends should be deceived by such event is not surprising, but the practised observer places on it no reliance whatever. Let me say, in passing, that there is another phase of these affections well calculated to lead astray the inexperienced observer. Their earliest stage is sometimes marked by an absence of any of those aberrations which are popularly regarded as essential to insanity. All the intellectual processes which imply any effort of attention are performed with their usual correctness. The most careful examination can detect no delusion, nor extravagance, nor singularity of thought; no obliquity, nor perversity of feeling. The mental disorder is confined solely to the perception of the fitness of things, in consequence of which the patient is committing improprieties of conduct of which he seems to be unconscious. He does not defend or explain them, as other patients do, but simply ignores them altogether, or, at the most, gives only a lame and impotent reason. If in business, he engages in some transactions preëminently absurd, for which he can give not even a plausible excuse. While in the hospital, he is constantly transgressing those proprieties of behaviour which are the last to disappear from the demented mind. He is as likely to yield to the calls of nature in places exposed to observation, as anywhere else, and is so heedless of appearances as to go into company with the flaps of his trowsers down. His room is always in confusion. When unobserved, he mars the furniture, tears the carpet, and breaks the plastering, and in the night, when nature calls, he seldom troubles himself to get out of bed. When these delinquencies are charged upon him, he coolly denies them altogether. The mental integrity which appears in his discourse must not lead us to think lightly of his disease, as it inevitably will any one who expects to find insanity always manifested in the conversation—in the views or feelings, as well as the ways and actions.

There is much reason to believe that the grade of intellect is a very important element of prognosis. If accurate statistics on this point were possible, they would show, I am inclined to think, that, *cæteris paribus*, patients with good intellectual endowments recover, in larger proportion, than those less happily constituted. I have no theory on the subject, but all the analogies of physiology seem to warrant the opinion, that the greater the energies of the mind the greater would be its recuperative powers under the stroke of disease. It is certainly a significant fact that in a large proportion of cases, the men of world-wide renown who have been smitten with mental disease have recovered their reason. Of the Irish insane a remarkably large proportion, it is well known, prove incurable. The few that have recovered under my observation have been, for the most part, superior in point of intellect to the general run of their countrymen. Every one who has had much to do with this class of patients must have observed that, even after recovery, many of them, especially those of the lowest grade, find it difficult, if not impossible, to perceive the true character of the delusions which they entertained in the height of their disorder. They may have regained in all other respects their normal condition, but they never renounce the belief that the events they imagined had a real, objective existence. And if we consider the matter for a moment it could hardly be otherwise. To make the necessary comparisons and allowances, to analyze a confused mass of mental phenomena, to distinguish the subjective from the objective—all this requires an order of intellect and a kind of training very different from theirs. The fact is of a kindred nature, probably, with that of the intractability of the disease in this description of patients, and may both be referred to the general law already alluded to, that the restorative power is proportional to the strength and development of the organ affected. In making up our prognosis, therefore, the intellectual grade of the patient should not be left out of the account.

The general condition of the patient constitutes an important element in the prognosis. Analogy and observation both teach us that, when the attack has been preceded by no serious impairment of the vital energies, the chances of recovery are far greater than under the opposite circumstances. Perhaps no single incident more strongly warrants a more favourable prognosis, than a high condition of the general health. The complete and ready cure of the cerebral affection seems to require that the other organs should be as sound as possible, and radiate only the healthiest influences towards the brain. Besides, it is to be considered that, in many cases—and the number is constantly increasing among us—one of the most efficient agencies in the production of mental disease is that condition of the system which passes under the name of ill-health, consisting, chiefly, of the nervous exhaustion and disturbance that spring from feeble stamina, excessive labour, minor physical ailments, care, anxiety, and disappointment. The mental affection is the last of a series of pathological changes which have been sapping the energies of the constitution; and, consequently, in this connection, it implies almost a fatal draft upon the vital powers. A few of them recover their reason, but by far the greater number linger through a few years of excitement or depression, mingled with delusion, before they pass to their final rest.

ART. XI.—*Localization of Diseased Action in the Osseous System.*

By HARRISON ALLEN, M. D.

THE relations believed to exist between cause and effect, as observed in cases of assumed idiopathic origin, seem to us to be well worthy of investigation. The opinion that in conditions of systemic disturbance, symptoms arise in obedience to the operations of general laws, appears to be well founded. The truth of this may have been conceded long ago, but whether so or not, it has been so rarely pointed out in medical works that we feel warranted in dwelling upon the subject in some detail.

Among the occasional allusions noticed in the writings of practised observers may be mentioned the following :—

The elder Colles[1] definitely asserts, with respect to the effects of age influencing diseased action, that the "periods of life have some concern in the prevalence of disease in one class of bones over another; in very early life, say from the age of seven years to twenty-one, the long bones are mostly affected, while from thirty to thirty-five years of age the flat bones more frequently suffer."

> "The various osseous processes for muscular insertion, and the several surfaces of bony contact in the vertical plane of the trunk, are the portions of the skeleton most liable to undergo excessive waste—the former by traction, and the latter by pressure; and they are the portions, consequently, most liable to quantitative errors of nutrition."[2]

Again, apart from the acknowledged aphorism that an organ is most liable to become the seat of disease when "its functional and vascular activity bears the greatest ratio to that of other organs of the body,"[3] it is highly probable that a developmental activity conduces to a similar result; thus, H. Gray[4] found "myeloid tumours occur at an early period of life and within the period in which the cellular forms (characteristic of the growths) form a constituent part of the normal medulla. * * * It is a remarkable circumstance also that in every one of these cases the tumours have taken their origin in the epiphysal ends of the long bones."

Mr. Paget,[5] while apparently mistrusting the value of such reflections, gives proof in the following extract that in his method of research they at times held a place.

> "The cases of this singular disease (cartilaginous tumours of the hand) have shown great diversity as to the cause of the tumours, and in their modes and rates of growth; some making progress, some remaining stationary, and I believe it has often happened that at the time of man-

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[1] Surgical Lectures, 1845, 316.

[2] Simon's Lectures on Pathology, 1850, p. 88.

[3] Barlow, Guy's Hospital Reports, Series I., vol. vii.

[4] Myeloid and Myelo-Cystic Tumours of Bone, Med.-Chir. Trans., xxxix. 144.

[5] Lectures on Tumours, 1853, 201.

hood all have ceased to grow. * * * It would be easy and as vain as easy, to speculate on the meaning of such a disease as this. I believe no reasonable explanation can yet be given, unless it may be said that these are the results of an exuberant nutrition similar to that which in the embryo may produce supernumerary limbs, but is here more disorderly and less vigorous."

With respect to degrees of vascularity of an organ influencing the form of disease attacking it, Maurice Colles[1] employs the following emphatic language:—

"The degree of vascularity of an organ determines the direction of morbid action. Thus, encephaloid is more frequent than scirrhus in the mamma during its active stage, while scirrhus is oftener seen than encephaloid after that period. Certain vascular organs, such as the testicle and tongue, are rarely, if ever, affected with scirrhus."

Another instance, rather quaint than otherwise, is illustrative of the endeavour to ascertain the causes of localization of diseased action.

Mr. Wilks,[2] in a report of a case of cartilaginous tumour of scapula, says:—

"It may not be uninteresting to observe that during the period in which this tumour was being so rapidly developed on the shoulder, similar structures to those which it contained were being as quickly produced in the fœtal structures in the uterus of the patient, she being at the time pregnant."

For the sake of convenience we propose arranging our subject matter under the following heads:—

(1.) Development and Growth of Bone.
(2.) Vascular Supply of Bone.
(3.) Relations of Bone to Muscle.

(1.) DEVELOPMENT AND GROWTH OF BONE.—*Bones may be said to maintain in their Diseases relations to their Methods of Development and Growth.*

(*a*) The human embryo, in the early stage of development, is divided into two layers—an animal or nervous, and a vegetative or mucous. The latter has a remote connection with the skeleton, save in the region of the face. Here every bone excepting the malar is in contact with a mucous surface. The connection is slight with the inferior maxillary, but decided with the inferior turbinated bones and the ethmoidal scrolls. Indeed, the latter would appear to derive their chief source of nourishment from vessels going primarily to the mucous membrane. Such an arrangement of bones asserts a definite relation with the functions of respiration and alimentation, and it might with propriety be said to have a splanchnic significance.[1]

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[1] Diagnosis and Treatment of Cancer and the Tumours Analogous to it, 1864, 42.

[2] Guy's Hospital Reports, Third Series, II., 1856, 5.

A glance at the diseases of the facial bones would appear to confirm this view of their relations. The nutritive processes within the jaws are largely dependent upon the presence and condition of the teeth. In smallpox, measles, and scarlet fever, diseases affecting the mucous and integumental surfaces, we may have necrosis of the jaw as a sequela. In typhoid fever, in which the lesions are chiefly of the mucous tract, we may find associated parotiditis, and maxillary necrosis as a sequela. Again, the "melting away" of the turbinates in the secondary stage of syphilis follows upon specific inflammation of membrane covering them.

(*b*) In tracing the development of the head we learn that the brain-case sends a vertical prolongation—the frontal process—from its vertex downwards in the median line of face, to terminate on the level of the floor of the nose. Within it originate the nasal and intermaxillary bones, with part of the ascending process of superior maxillary bone. It meets with a horizontal prolongation of the base of the cranium—the nasal septum. The lateral portions of the face, the upper and lower jaws, advance from the sides, to unite with the above to inclose the scrolls of the olfactory capsules, viz., the inferior turbinated bones and the lateral masses of the ethmoid.

We detect in the ethmoidal and vomerine elements a projection of the primordial skull into the region of the face. These pertain, therefore, to the former in their morphic relations, but to the latter in being covered with mucous membrane.

Applying these facts to pathology, we find that in consequence of the distinction of the superior maxillary bone into lateral and median portions, the latter, or inter-maxillary region, may be separated as a sequestrum when necrosis does not involve the former.[2] Necrosis of the upper jaw, when commencing in the alveolar region, rarely crosses the median line. In edentulous skulls it is not unfrequent to see the alveolar ridge of the incisorial portion of the dental arch resisting absorption a longer time than the lateral. With respect to the nasal septum, it is singularly free from disease[3] or deformity. Its chief abnormality is deflection, a result of the vomer and perpendicular plate of the ethmoid continuing to grow subsequent to the walls of the cavity of the nose becoming fixed.

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[1] "The teeth in the early embryonic conditions are developed from and are dependencies of the mucous membrane of the mouth. * * * * We have strong grounds for the hypothesis that all the bones of the face, which are developed in the walls of the primitive cavity of the mouth which they surround, are in their anatomical and physiological relations splanchnic, connected with digestion or respiration, rather than parts of the endo-skeleton of animal life."—*Wyman, Nervous System of Rana pipiens, Smithsonian Contributions*, 1852, v. 41.

[2] Bryant, Guy's Hosp. Rep., 1869, 238.

[3] C. H. Moore, in Trans. Path. Soc., 1868, xix. 332, narrates the following case of "chondro-facial enchondroma:" Male, aged 22. Tumour of five years' duration. It involved frontal bone and base of nose, and protruded in the median line of face.

Heyfelder[1] narrates a case of destruction of nasal septum from a large exostosis, involving the nasal, lachrymal, palatal bones, with the body and nasal processes of both superior maxillaries, the palatine process of the latter bone being preserved.

(*c.*) The bones of the base of the skull, viz., the occipital (excluding the supra-occipital portion), the sphenoid, the temporal (excluding the squamous portion, and styloid process), arise from cartilage. All the portions excluded in the preceding paragraph, the ethmoid bone and vomer, the parietal and frontal, together with the process extending into the face (yielding the nasal and intermaxillary portions of the superior maxillary bone), are derived from membrane.

Disease rarely involves both these regions in the same subject. Should the base of the skull be affected, the vertex is exempt, and *vice versâ.* Ordinary care must be taken in examination of diseased crania with respect to this point, not to confound primary with secondary lesions.

(*d.*) Sinuses are largest, as a rule, in bones which from the standpoint of development are most complex, that is to say, have the greatest number of centres of ossification. Thus, the superior maxillary bone has certainly three, perhaps seven centres; the sphenoid has five; the ethmoid and frontal together, four.

Now it is well known that fibroid growths, exostoses, etc., very commonly originate within and from mucous sinuses. Is it not more than coincidental that expressions of hypertrophy should be most frequent in localities where the greatest number of centres of growth have early coalesced?

(*e.*) The brain-case, considered as a collection of bones designed to protect the brain, constitutes to a limited extent a physiological as well as a mechanical unit. The centres composing it become weakened in individual force after closure of the sutures, so that a diseased process is rarely confined to an embryonal area.

It is a fact worthy of notice, that while in the growing cranial bone we find its greatest thickness in the position of its centre of ossific deposit, in

It originated within, and was for the most part confined to the nasal septum. It here formed a rounded mass, smoothly covered on its sides, as well as above and below, by the two widely-parted layers of Schneiderian membrane belonging to the septum. It did not extend quite to the back of the septum, or to the floor of the nostrils (*sic*), between which and the tumour the cartilaginous part of the septum lay crumpled but otherwise healthy. It was incorporated with the base of the cranium from the lower part of the body and right internal pterygoid process of the sphenoid forward, the crista galli being involved in the disease, but not the cribriform plate of the ethmoid bone.

[1] The Resection of the Upper Jaw, Berlin, 1857, 17.

the adult bone this thickness is shifted, so to speak, to its margins.[1] In other words, a marked degree of vascularity is present at a point remote from the centre. Familiar instances of this are seen in the superior angle of the occipital bone, the great wing of the sphenoid, and the orbital plate of the malar. In consequence of such an arrangement, by the time the sutures are accurately adapted, vascular activity is most pronounced along their lines, and continues so throughout adult life.[2] This applies more particularly to flat bones. In diseased action a premature accession to the stage of sutural union causes thinning in the body of the affected bone, the area of deficiency always lying somewhere between that for the centre of ossification and the borders of the bone, though it may involve the latter.[3]

(*f.*) In the long bones the centres of ossification, while losing identity in form, may maintain a peculiar independence of action. Thus, in dislocation of the adult femur on the dorsum of the ilium, the epiphysis has remained displaced after the reduction of the shaft. Epiphyses may separate spontaneously in osteo-myelitis. In fracture of the neck of the femur, that portion of the neck attached to the epiphysis may become absorbed, restoring to the epiphysis its original contour. In chronic arthritis, a series of morbid phenomena are restricted near to or within the epiphysal extremities of the bones. A sequestrum may be restricted to the diaphysis. Indeed this is the rule, the extremities of a bone rarely becoming involved. On the other hand sequestræ may be formed within the epiphyses themselves.[4] Disease of epiphyses impairs the growth of the shaft, as *per contra* disease of the shaft affects the growth of the epiphyses. The centre of ossification of an epiphysis may become necrosed.[5] Many joint diseases have their origin in their contiguous epiphyses. The region of the knee-joint, for example, is limited by the epiphysis of the femur above and by that of the tibia below. These with the patella and intervening synovial membrane make up an aggregate within which diseased action, more especially its chronic expression, finds an area insulated in part (by its origin, nerve and blood supply, and method of growth) from those of the adjoined diaphyses.

(*g.*) In some localities, as in the neck of the femur and in the outer wall of the orbit, we find that atrophy is one of the most constant characters of advanced age. It will be seen that in both these localities we have terminal areas of growth: in the first the end of the shaft of the femur, in the second the lines of junction of the greater wing of sphenoid with the orbital process of malar. It would here appear as though the part last formed was the first to give way, and that in these instances, at least, evidence of retrograde activity is most marked along the lines of progressive activity.

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[1] Humphrey, Treatise on the Skeleton, 186.

[2] Gibson maintained that the sutures exist as the result of the meeting of opposing forces of growth. It would appear, therefore, that the thickening of the bones at their points of contact occurs only where they are instances of *sutura vera* and *harmonia*, as opposed to those of *sutura squamosa*.

[3] Thomas Smith, Trans. Path. Soc., London, 1865, 224; also, a Specimen in W. & H. Museum.

[4] Brodie, Surg. Lectures, 222. W. Adams, Trans. Path. Soc., III. 165.

[5] Birkett, Trans. Path. Soc., London, 1826, vi. 288. Cat. to Mus. Guy's Hos., No. 1484, 49.

(2.) Vascular Supply.—*Vascular currents, while determined by the needs of the tissues in which they terminate, may also modify, under diseased action, the region through which they pass.*

Thus, the spheno-parietal suture disappears at an early date, and the tract of the great meningeal artery is a favourite area for ossific change,[1] as also is the outer plate of pterygoid process and the external angle of the frontal bone.[2]

The malar bone and the posterior portion of the superior maxillary, at points where they are perforated by their respective arteries, viz., the malar branches of infra-orbital and the alveolar branches of the internal maxillary, are liable to similar changes—the former in the young subject more especially, where the malar is proportionately thick and vascular, the latter, in the senile subject, where the parts about the foramina are often rugose. This last may be of rheumatic origin.

In two of the most noted instances of facio-cranial exostosis on record, viz., those of Murchison[3] and Lebert,[4] in the one enormous outgrowths appear in the malar bones, while in the other they are but slightly involved.

The direction of a vessel will often decide the locality of an inflammation, and conditions being favourable, that of a sequestrum also. Thus, the nutritive vessel of the shaft of the femur being directed upwards, medullitis is more apt to be located toward the proximal than toward the distal region of the medullary canal. The corresponding artery of the tibia, on the other hand, running as it does downwards, will determine the situation of the tibial medullitis at its distal end.[5]

In specimens of fracture of the long bones the fragment remote from the main source of vascular supply is liable to undergo atrophy.

Atrophy, however, may occasionally take place in a marked degree within an area supplied with a main bloodvessel. As, for example, in the proximal end of the femur in cases of coxalgia, with loss of head of bone from caries. Such specimens quite constantly exhibit numbers of minute foramina, which we have denominated for convenience the foramina of absorption. They are of a rounded form, closely aggregated, the bone being smooth in the interstices.

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[1] Specimen in Cabinet of Dr. W. W. Keen, showing syphilitic ostitis of zygomatic surface of great wing of sphenoid.

[2] Lebert's Atlas, pl. clxxv. fig. 3.

[3] Trans. Path. Soc. London, xvii. 243, pl. 10, xii.

[4] Atlas, pl. xxxii. fig. 1.

[5] Nobis, American Journal of the Medical Sciences, 1865, xlix. 43.

Morbid action is most frequent at that part of the bone within which the area of development is the largest and most active. Thus we see necrosis of the femur of the adolescent almost invariably occurring at the lower portion of the femur, since it is here that the greater degree of vascularity is found.

In the humerus its proximal end is under similar circumstances the one prone to disease. Indeed, morbid growths—such as tumours—are rarely found in any other portion of the bone. [See also quotation from H. Gray in preceding part of this paper.]

(3.) RELATIONS OF BONE TO MUSCLE.—*Continual excitation of points of connection of muscles with bones (more especially if such connection be by tendon) may prove to be an exciting cause to disease within such areas.*

Exostoses are often found along lines of intermuscular septa. The "rider's bone" is situated along line of insertion of the femoral adductor muscles. The "exercise bone" is seen on left humerus of Prussian soldiers.[1] The trochanter minor of femur may appear in an exostosed condition, extending along the line of the psoas and internal iliac muscles.[2]

The excitation, however, may not be of the kind or degree to secure hypernutrition as a result. Subject to many influences, among which a taint of the system is perhaps the chief, the same exciting cause may induce destructive changes in the bone itself.

The tendency to the limitation of diseased areas by muscular impressions is in many cases quite noticeable. Specimens are not rare showing the region of the origin of the third head of the triceps muscle to be affected with caries or ostitis while the remainder of the shaft of the humerus has remained in a healthy condition.

A locality on the upper and outer aspect of the upper third of the femur, defined by numerous punctate foramina, occasionally produces a pedunculate exostosis.

The influence of muscles in determining disease of the cranial surfaces is less pronounced than in the bones of the extremities.

The following localities are frequently the seat of minute hyperostoses: Inferior margin of malar, from masseter muscle; mastoid process, from sterno-cleido-mastoid muscle; occipital protuberance and crest, from nuchal ligament and post-cervical muscles.

The impression of the temporal muscle is smoother than other portions of the cranium, and is rarely the seat of diseased action. The same may be said of the impressions on occipital bone. In the specimens of cranio-facial exostosis of Murchison and Lebert, this region is entirely free from osteophytes.

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[1] Virchow, Osseous Tumours, vol. ii. 72.

[2] Birkett, Guy's Hospital Report, 1868, xiv. 499.

The inter-temporal space—a region including median portion of vertex, and extending thence downwards and backwards to and behind the mastoid portion of the temporal bone, is less protected by muscular masses than other portions of the skull. It is owing to this fact that we frequently find here striking examples of excitation, probably of traumatic origin. In a specimen in the Wistar and Horner Museum, the space between the impressions of the temporal and post-cervical muscles was the seat of a well-defined sclerous exostosis.

The liability of the space between the mastoid process and foramen magnum to become inflated, exostosed (pneumatic process), or depressed, leads us to conjecture whether there may not be some connection between this area and the projection of the para-mastoid process in the hog and horse. The tendency of the mastoid process to become carious in adolescence, and frequently to undergo partial atrophy in advanced life, is suggestive of the fact that this process is peculiar to man, and it may be that one of the causes of its easy obedience to life changes is in some way associated with its zoological significance. The same may be said of the fixed styloid process which becomes exostosed during senility. The *lingula sphenoidalis* becomes inflated in old age. There is a suspicion that naso-pharyngeal polypus at times originates from this region.[1]

For the sake of illustrating in a particular bone the application of the foregoing propositions, let us select the lower jaw, endeavoring to account for its diseases in this manner.

The lower jaw is a symmetrical bone, the two halves arising independently of one another.

Its power, so to speak, resides in its halves, and not at or near the symphysis. Tumours are found, therefore, rarely at the median line. Excluding the gum tumours, which form a separate group, the only growth occuring at the symphysis is an occasional exostosis.[2] The alveolar region being designed especially to accommodate the teeth,[3] furnishes distinctive features in its vascularity, and in its contact with a mucous surface; hence arises a distinct group of tumours for this region—the dental tumours and the epulides. Exclusive of the alveolar region the lower jaw has thick compact walls with little cancellated structure; hence caries is uncommon, while necrosis is relatively frequent. It is without epiphyses; hence diseases of the joints are rare. It is a membranous bone; hence fibrous tumours are common, but the cartilaginous are rare. It is a vascular bone; hence encephaloid is more frequent than scirrhus. Primary scirrhus is one of the rarest of maxillary tumours. The angle of the jaw is subject to great muscular traction, through the masseter, internal pterygoid, and temporal muscles; hence this region is prolific in fibroid and cystic tumours. In addition, it is curious to remark, the greater potentiality (?) possessed by the right side of the bone. Tumours of all kinds are more frequent on this side.

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[1] Guerin, Gaz. des Hôp. 1865, 375, Syd. Soc. Retros. 1867, 241.

[2] Hyrtl, Topograph. Anat., i. 324.

[3] "The alveolar processes of both jaws should rather be considered as belonging to the teeth, than as parts of the jaws." Palmer's Hunter, vol i. p. 4.

In the region of the head of the tibia, noted for its tendency to disease, we find among other causes the following: Its cancellated structure predisposes it to strumous deposit, cancer, caries, inflammation and its consequences. The protracted activity of the epiphysis as a distinct centre sustains the vascularity for an unusual period. The large area covered by the epiphysis causes in its disorders tendencies to articular complications. The numerous and powerful muscular connections conjoined to the comparatively slight protection, secured to the part through the surrounding skin and connective tissue, lead to development of tumours, more especially the exostoses.

Such are some of the relations which appear to obtain between methods of development, growth, habit, vascularity, etc., and localization of diseased action in the osseous system. They are, it is acknowledged, meagre. Believing, however, that every biological principle must be proved by the test of pathology, there is a strong probability that eventually we may arrive at something of decided value.

Art. XII.—*Hydrencephalocele Radically Cured.* By Daniel Leasure, M. D., of Alleghany City, Pa., late of New Castle, Pa.

I was called January 24th, 1870, to see P. P., female, aged fifteen months, labouring under occipital spina bifida, or hydrencephalocele. When two weeks old, she had been treated by a surgeon of high repute in a western city, where the parents then resided, but without success. When I saw her, she had a tumour, nine inches in circumference, occupying the lower central portion of the occipital region. On lifting up the tumour, and passing the fingers up underneath its pendent portion, a foramen in the occipital bone could be distinctly felt about an inch in its lateral diameter, and situated in the lower third of that bone, but I could not determine positively whether it extended near, or quite to the foramen magnum, owing to the thickness of the integumentary and muscular covering at that part. The fluid contents of the tumour communicated freely with the cavity of the cranium, and at one time, the parents inform me, that during a severe indisposition, in which the child seemed to labour under some cerebral disturbance, the *tumour shrunk up* to less than half its ordinary size. This, I take it, would argue, that whatever may have been the nature of the disease, the state of the intracranial organs must have been one of anæmia of the vessels of the brain proper, constituting a tendency to vacuum, within the cranium, which the fluid in the tumour went to fill temporarily, until such time as the blood, returning to the brain, thrust out again the superabundant fluid into its reservoir, the tumour. However this may be, the fact is worthy of note, as possibly bearing on the pathology of certain disturbances of the brain, the precise cause of which affords room for further research. The contents of the tumour seemed entirely fluid and semi-translucent, in this respect presenting very much the appearance of a well-developed hydrocele. The antero-posterior circumference of the head, passing the tape under the pendent portion of the tumour, was nineteen and a half inches. The general health of the child was good, though it was pale and somewhat hydrocephaloid. A number of professional gentlemen had examined the case, and gave no encouragement. Indeed the statistics of treatment for radical cure afforded little room for hope, and I could give none. However, on a visit to Philadelphia in February, I consulted my friends Professors Gross, Pancoast, elder and younger, and D. H. Agnew, all of whom agreed, that, while a plan of treatment I proposed, offered as fair a prospect as any other, the probabilities of success were so few as to scarcely justify an effort at cure.

On my return to New Castle, Pennsylvania, I explained to the parents the unfavourable opinion we all entertained of a successful treatment, and also submitted to them the plan I had proposed to my friends in Philadelphia; and stated that I was willing to make an effort to save their child, with a perfect understanding that I would probably fail, and the child die of the effort to cure, sooner than it would if not interfered with.

The patient was teething, and that complicated the treatment, but the tegumentary covering of the tumour gave evidence of thinning down to a point of attenuation, where rupture was sure to supervene, and the sudden discharge of its contents, and the escape of the cephalo-spinal fluid from within the cranium, must inevitably end in convulsions and speedy death. The parents gave a cordial assent to the effort to save their child, and, as they were unusually well informed on all points connected with the case, the father being a clergyman, and there being several physicians and surgeons related to the family, amongst whom the matter had been the subject of grave consideration, I felt sure of an efficient and intelligent co-operation on their part, a matter of no small moment in such an undertaking. The child had not been permitted to essay walking, had never crept, but had always been nursed and carried lying on her side on a large pillow, because she could not lie on her back, on account of the size of the tumour, and the danger of its rupture from pressure.

The indications presenting themselves to my mind were, firstly, to get rid of the fluid in the tumour without permitting any portion of the cephalo-spinal fluid contained within the cranium and spinal column to escape; thereby removing hydrostatic pressure in a degree from the brain and spinal marrow, and permitting the blood to rush in and distend the cerebro-spinal vessels, in the effort to fill the tendency to vacuum created by the escape of the fluid from within the walls of the skull and spinal column, which would not yield to atmospheric pressure, and keep up a steady compression of their contents; and secondly, to cause the foramen in the skull to be filled up by adventitious unyielding tissue or bone, thus forever preventing the return of the malformation. The manner in which I undertook to meet these indications will be presently described. My idea of the treatment was suggested by the ordinary treatment for the radical cure of hernia, by compression of the walls of the ring through which the protrusion takes place, until inflammation first, and reparative action afterwards, results in the production of plasma, that glues the sides together, and closes the passage against further protrusion of the contents of the abdomen.

If I could get rid of the fluid in the tumour safely, and apply an apparatus that would effectually prevent the escape of the cephalo-spinal fluid from within the cranium, and at the same time set up a certain amount of irritation, inflammation, and partial destruction of that part of the integumentary coats of the tumour pressed by the apparatus against the edge of the foramen in the occipital bone, and also of the external periosteum of the skull at the same point, there would be a reparative process set up; the sero-fibrous lining of the tumour (the dura mater and possibly arachnoid) would slough, permitting the raw surfaces of cellular tissue to come in contact, and unite in the ordinary way, by plasma; while the partially destroyed periosteum would also throw out plasma, and it would be *bone bearing plasma;* and it was possible that nature, thus provoked, might go on by a resumption of its work under the original law of symmetrical development, to fill up the fissure or chasm left in the embryonic development of the fœtus, and so close the foramen in the bony case of the brain, and rescue the patient from her perilous condition.

March 3d, I placed a gum-elastic band, less than half an inch in width, and two inches in its diameter when not stretched, such as is ordinarily used to confine files of papers, around the base of the tumour, where it was only eight inches in circumference, so as to contract that portion of the scalp dissected off from the skull by the distending pressure of the fluid in the tumour; and at the same time, add an additional pressure to its covering membranes, with a view of keeping as much fluid as possible within the cranium; thereby guarding against any additional accumulation of blood within the cerebro-spinal vessels; for I did not fear any ill results from the pressure of the fluid *outside the vessels,* for the parts had become accustomed to that, but *I did fear* the pressure of a volume of blood *within the vessels,* corresponding to any quantity of the extra-vascular fluid that might escape suddenly.

After permitting the band to be worn two days, I punctured the sac with the capillary trocar of the hypodermic syringe, and applying the syringe, pumped out one full of the instrument after another, till I had removed an ounce and a half of a dense serous fluid, resembling in all essentials the ordinary healthy cephalo-spinal liquor; after which the elastic band was readjusted, so as to keep uniform pressure on the tumour, primarily, and upon the fluid within the cranium secondarily.

On the following day, the same operation was repeated, drawing off two ounces of the fluid, and readjusting the band as before. The sac would become quite soft and relaxed during these tappings, but by drawing the elastic band away from the base, towards the apex of the tumour, a continuous pressure was kept up; though the contents of the sac would increase some during the intervals between the tappings. I was thus solicitous concerning the matter of preserving equable pressure on the organs within the skull, because I lost the first and only case of this malformation I ever had, nearly thirty years ago, from the too rapid abstraction of the contents of the sac, permitting a sudden spirt of cephalo-spinal liquor from within the cranium into the nearly empty pouch, inducing speedy death of the patient. This operation of drawing off the fluid was repeated again on the next day, and during all this time the little patient remained in her usual health, eating, sleeping, and playing with her toys as though no adventurous hand was experimenting with her life.

In all these preparatory steps, as all through those that followed, I was ably assisted by my friend and former pupil, Dr. John B. Reinholdt, of New Castle, Pa., late Surgeon 51st Infantry, Penna. Vol. March 7th, two days after the last tapping, having prepared all the necessary apparatus, I proceeded to pass a small trocar into the lower posterior part of the tumour, where it was most pendent; and withdrawing the stylet, permitted the fluid to the amount of eight fluidounces to escape into a vessel held by an assistant. As the contents of the tumour flowed slowly out, Dr. Reinholdt placed two fingers of his right hand on the posterior integumentary covering of the tumour, supporting the patient's head with his left hand on the forehead, and gradually and firmly pressing the integuments before his fingers as the sac collapsed; he passed them into the foramen in the occipital bone, and causing the points of his fingers with the membranes, cellular tissue, and skin composing the enveloping sac of the now shrunken tumour to adjust themselves to the opening, he effectually closed it like a valve and prevented the escape of any portion of the fluid contained within the cranium, while the remaining fluid in the sac was thoroughly drained out. On examining the region around the occipital fissure, we found that the edges began to dip towards the foramen about an inch from its edge on all sides, and this formed a pit or sulcus all around the fissure. We were not able to decide whether the fissure extended down to the foramen magnum, or whether there was a bridge of bone between the foramen magnum and the unnatural fissure. The tissues that formed the covering of the late tumour had shrunk up, and being greatly condensed, formed a ring around the fissure varying from one-half on the upper side to an inch in thickness on the lower side. Keeping the cranial opening carefully closed all the time by the fingers of my assistant, I formed a compress of cotton wool enveloped in a piece of fine muslin of a size sufficient to fill completely the hole in the bone, and also the depression around it, and leave a free surface of pad protruding beyond the surrounding healthy skull and tissues, and interposing a fold of silk oil cloth between the pad and the skin adapted it to the sulcus, while the assistant adroitly withdrew his fingers, and used them to sustain the compress *in situ* until the remaining steps of the dressing were completed. Over the compressing pad or ball, I now placed an ordinary soft elastic gum disk pessary (the only thing I had at hand to fill the indication), and over this an elastic gum band formed from an ordinary shoulder brace, passing around the antero-posterior circumference of the head, and secured on the forehead by a buckle and by tapes tied under the chin and over the top of the head. Of course the patient cried out a good deal, as no anæsthetic was used for obvious reasons, but it soon fell asleep, and did not show any signs of cerebral disturbance then nor afterwards. On the fourth day, still assisted by Dr. Reinholdt, I removed the apparatus, and substituting a boxwood compress which I had removed from an umbilical truss, for the soft compress, I reapplied the disk of India rubber and the elastic band as before. No fluid had escaped during the interval, and none escaped during the dressing, care being taken to keep the parts well in apposition by the fingers of the assistant. No untoward symptoms followed, and on the fourth day, or eight days after the evacuation of the tumour and application of the apparatus, the dressing was again changed. At this time no effort was made to prevent the escape of fluid from within the skull, and none escaped. The opening in the occipital bone seemed to be filled up by plastic material, which, though soft, was quite firm. There was a good deal of redness of the integuments that had been subjected to pressure, with some tendency to slough. The parts were thoroughly cleaned with soap and warm water, and then freely anointed with a solution of carbolic acid in glycerine, twenty grains to the ounce, and a soft pad of cotton wool substituted for the hard compress, with a piece of silk oil cloth interposed between the pad and the sloughing integuments, and over this the disk and elastic band as before. The solution of carbolic acid, reduced one-half with water, was applied four times a day by pouring it between the oiled silk and the skin at the upper side of the compress, and by slightly pulling out from the head the upper portion of the pad the solution passed down to the sloughing parts. During the last four days a bistoury was freely passed through the folds of integument around the compress so as to permit the infiltrated fluid to escape out of the subcutaneous cellular tissue, and also to facilitate the discharge of the debris of the serous lining of the sac in that portion where there was no pressure made. On dressing the sore two days after the last dressing, there was found to be an extensive slough occupying the whole of the space subjected to pressure. It was rather loosely attached, and fearing to detach it prematurely, I did not interfere with it, but after thoroughly bathing it with the solution of carbolic acid, a poultice of flaxseed meal was moulded into the depression and secured by the elastic bandage, omitting the gum disk, as firm elastic pressure was no longer needed, and the separation of the slough was awaited with much anxiety. After this it had daily dressings with the carbolic acid solution and the flaxseed meal poultice; and on the fifteenth day after the operation I made a thorough examination of the parts and found that the slough extended down to the external periosteum, and a portion of the skull was denuded of its pericranium and somewhat rough. The slough was slowly separating itself from the subjacent parts, and the foramen in the bone was closed by a dense firm plasma which offered strong resistance to any pressure that I felt safe in making. The case was now left to the care of the parents, who made morning and evening dressing, and I saw it every third day. About this time the child was put upon the use of syrup of the pyrophosphate of iron with quinia three times a day, and she rapidly improved in colour and strength.

Her appetite demanded a great deal of food, and her bowels were soluble without taking aperients, which had not been the case previous to the operation. Throughout the whole treatment she had retained her ordinary diet of milk and bread, and had taken *no medicine* till I ordered the iron, quinia, and phosphorous mixture as a tonic and blood-food.

The slough slowly separated and disclosed underneath a healthy granulating surface, no perceptible portion of bone exfoliated, and the opening in the skull was filled up by a firm dense scarcely elastic plasma, presenting to the touch a resemblance to cartilage, which is gradually becoming harder to eventuate as I hope in tissue, resembling that which plugs up the foramen made in the skull by the crown of the trephine, after a successful operation with that instrument.

The tegumentary covering of the tumour has shrunk up, and formed a rather solid button-like protuberance around the seat of the late opening in the bone; and now, on the 25th of May, it is about two inches in diameter at its greatest circumference, and under the use of an iodine ointment it is visibly decreasing, but if after a reasonable time has elapsed, it remains a source of inconvenience, a few strokes of the bistoury will remove it entirely.

The patient has protruded several teeth during the progress of the case, without even the ordinary irritation attending that process. She has never had an hour's indisposition during all the time of treatment, but ate and slept as usual, and has, since the third week after the operation, ridden out daily in her little carriage; lies comfortably on her back while resting or sleeping; has learned to walk and run about like any other child; has grown fleshy and ruddy, and being somewhat hydrocephaloid is rather precocious, but has not at any time manifested, and does not now show any indications of cerebral disturbance, and there is no appearance of the plug in the bone yielding to pressure from within the skull to result in a reproduction of the deformity; and so far as the results of the operation are concerned I think it is safe to consider it successful.

Art. XIII.—*An Additional Method to determine the Degree of Ametropia.* By Wm. Thomson, M. D., Assist. Surgeon to the Wills Hospital. Read before the American Ophthalmological Society at Newport, Rhode Island, July 22, 1870. (With a wood-cut.)

In the number of this Journal for January, 1870, will be found a description of a test for ametropia, based on the experiment of Scheiner. It was there shown that whenever the visual axis is too long or too short, a point of light, used as a test object, will appear double to the eye of an observer when it is examined through two small perforations in an opaque screen.

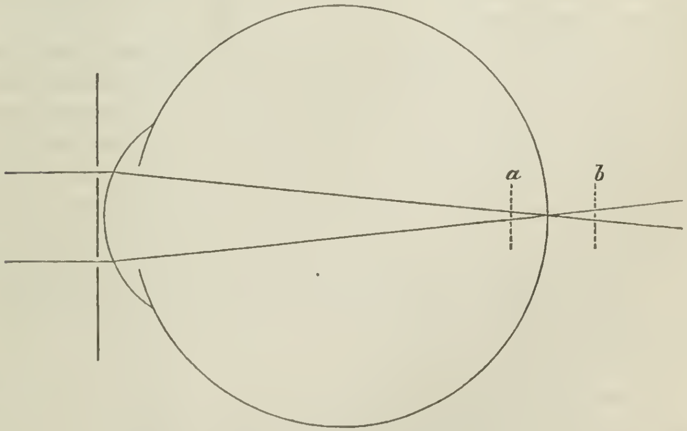
A short experience with the disk clinically, or with ametropia artificially produced, convinces one that the degree of ametropia influences the apparent distance apart of the double lights, and that if that distance could be computed with accuracy, the degree of ametropia could be diagnosticated, and a correcting lens selected without a prolonged empirical examination.

After a sufficiently full demonstration of the laws of refraction as applied to the human eye, and an exhaustive analysis of its refracting surfaces of different curvature and its media of varied density, Donders gives his authority, in addition to that of Helmholtz, for the adoption, for purposes of calculation, of the simplified diagrammatic eye of Listing, which consists, as is well known, of a single refracting surface of 5 mm. radius in curvature, and a medium whose index of refraction is 1.333, whose posterior focus is 20 mm. and its anterior focus 15 mm. from its refracting surface.

From a comprehension of these cardinal points, it becomes possible to trace in this simple eye the course of any given ray of light; to find the points of conjugate foci; to ascertain the dimensions of retinal images, or of circles of diffusion which fall upon the retina in ametropia; and these values thus found may be considered equal to those which would exist under the same circumstances in the human eye, with its complicated apparatus composed of two complete dioptric systems.

Should an opaque screen, having in it two perforations, each .5 mm. diameter, and 4 mm. apart, be placed before a Listing's eye, its single surface would be converted into two minute lenses, prismatic in form, with their bases towards each other, and capable of forming independent images, which, when the length of axis is normal, fall upon the same point at the posterior focus. Rays of light from a source of illumination sufficiently distant to afford parallel rays would pass through these two openings, would be refracted at the anterior surface, and would converge to a point at 20 mm. distant posteriorly, where the two images would be exactly superimposed and would produce the effect of a single picture; and in this transit would be afforded, as a fixed quantity for future use, a triangle of two sides, each 20 mm. in length, united by an arc of 4 mm.

Should the retina of this eye be either advanced towards or removed from its refracting surface, an ametropia would be produced; the images formed by the rays passing through the holes would fall upon it separated from each other in proportion to the departure from the length of the normal axis; and a single point of light, at a distance, for example, of twenty feet, would, in accordance with the law of projection, appear double; and the two flames would be apart to a greater or less degree, in accordance with the amount of ametropia.



Listing's Eye, three times enlarged, showing, *a*. Hypermetropia of $\frac{1}{65}$; *b*. Myopia of $\frac{1}{65}$.

These considerations lead to the search for some fixed quantity without the eye which shall bear a proportional value to the known measure within it, and the convenience of the metrical system leads me to propose for calculation an angle of 5 m. radius, with arc or sine of 1 m., as equal to the angle of 20 mm. radius and 4 mm. arc with which we are already acquainted.

As a familiar illustration, let it be supposed that the two rays which are transmitted by the screen from a point of light five metres distant are two rigid wires, in contact anteriorly, passed through a screen, bent towards each other, and brought into contact 20 mm. from their posterior extremities. Should these posterior ends be moved apart, a much greater excursion would be made anteriorly; and if the separation at the former point should amount to 4 mm., the latter would be found distant 1000 mm., since 20 : 4 :: 5000 : 1000. Furthermore, we are able to ascertain where these wires would converge before or, if prolonged, behind the screen, when their anterior extremities are separated either by being drawn asunder, or crossed upon each other. When, for example, the anterior extremities are drawn apart 250 mm., we say 250 : 5000 :: 4 : 80 mm.; and we thus imitate very nearly the course of the rays in a hypermetropia of $\frac{1}{80}$ mm. or $\frac{1}{3}$, which diverge when they leave the eye as though they had their origin from a point of 80 mm. or $3''$ behind the nodal point. In like manner we imitate a myopia of $\frac{1}{3}$ by crossing the anterior ends and causing there a separation of 250 mm., when the wires would be found to converge and intersect each other at 80 mm. nearly in front of the screen.

From the last demonstration it arises that if we are justified in using Listing's eye for comparison, and if we can clinically measure the distance between the double images as seen through the screen, we are able to ascertain where these rays, if prolonged, would unite, before or behind the nodal point, and thus determine in a very expeditious and happy manner the degree of ametropia.

For this purpose the patient is placed 5 metres distant from a small point of light, having before his eye an opaque screen with two perforations in it, each .5 mm. in diameter, and placed 4 mm. apart, through which, in the overlapping space between the two holes, as described in a previous paper, he searches for the double images. Myopia or hypermetropia may be determined by placing over one of the holes a piece of ruby glass, when one of the images will become red, and be found on the same side with the hole covered in myopia, but crossed and on the opposite side in hypermetropia, a result which is explained by the well-known law of projection.

Having ascertained the presence and kind of ametropia, the red glass is removed, and the distance apart of the two images is measured by means of another small flame or light held in the hand of the surgeon, which is brought into the patient's field of vision whilst he looks at the first-mentioned fixed light. The second flame is moved in a line with the double images until the patient is able to say that one of the moving flames coincides with or overlaps one of the fixed ones, and that but three instead of four flames are perceived; and when this is accomplished, this distance of the fixed from the moving flame is ascertained by an ordinary rule or measure. Several other methods have been employed with success, and the ingenuity of each surgeon will enable him to overcome any difficulties he may encounter in these manipulative details.

The brief notes of a few cases will illustrate the use of this method.

Mrs. G., placed 5 m. from a point of light (a gas-burner turned low), saw two lights through a disk whose apertures were apart 4 mm., and the one coloured red stood on the side of the hole covered with red glass, thus demonstrating myopia. A candle lighted and held by the surgeon was now brought near to the gaslight, and it also appeared double, but it could be distinguished from the gas by its motion and its larger flame. It was moved back and forth until the left-hand flame of the candle overlapped the right-hand one of the gas-burner; and when this was accomplished, the distance from gas-burner to candle was measured with a common rule, and found to be five inches, or 121 mm. Then 121 : 5000 :: 4 : 165, which, reduced to English inches by dividing by 25.5, or to French inches by dividing by 27, gives 6.5 in English inches as the distance of convergence of the rays from the nodal point. The myopia was then found to be corrected perfectly by a $-\frac{1}{6}$ placed $\frac{1}{2}$ from the nodal point.

In a case of aphakia, after a successful operation for cataract, the distance between the double lights was found to be 10 inches, or 250 mm.; and $\frac{5000 \times 4}{250} = 80$ mm., or 3.2 inches.. This case required for its correction a $+\frac{1}{3.5}$, $\frac{1}{2}''$ from the nodal point, showing that the hypermetropia $= \frac{1}{3}$.

A case of hypermetropic astigmatism in a person able to give concise replies, and who could fully relax his accommodation, gave the following results. With the holes so placed as to analyze one meridian, the distance apart was $4'' = 101$ mm.; and in the meridian at right angles to first, 4.5, or 115 mm. Let x be the degree of ametropia, and we have the formula: $x = \frac{5000 \times 4}{101} = 196$, or 7.7 in., which indicates that the rays diverge from this meridian as though they arose from a point 7.7″ behind its nodal point, and that a convex $\frac{1}{8.2}$ would suffice for its correction.

After atropia an $\frac{1}{8}$ was found sufficient, combined with a cylinder of $\frac{1}{50}$, to overcome the greater ametropia of the other meridian.

It will be found convenient to use the English measures for these calculations, and to reduce Listing's eye and the other quantities to the following values:—

Radius, 5 mm. = 0.2 English inch.
Anterior focus, 15 " = 0.6 " "
Posterior " 20 " = 0.8 " "

The distance apart of apertures in the screen, 4 mm. = 0.16.

The distance from observer to test-light, 5 metres = 200 inches, or $16\frac{2}{3}$ feet.

The rule then would be to multiply the distance from the eye examined to the test-object by the arc of the small angle, and divide the result by the distance apart of the two lights as ascertained by measurement.

Mr. W. suffers from a high degree of myopia, using $-\frac{1}{4.5}$, which does not fully correct it. The distance apart of the images was 8 inches. Then $\frac{200 \times 0.16}{8} = \frac{3200}{8} = 4$. With $-\frac{1}{3.5}$ the double lights were perfectly fused together, and his myopia corrected.

Mr. M., with the disk so placed that a line uniting the holes was horizontal, saw the points of light apart $4\frac{3}{4}$ inches, and in the vertical meridian they were 3″ apart. $\frac{200 \times 0.16}{4.75} = 6.7''$. $\frac{200 \times 0.16}{3} = \frac{3200}{3} = 10\frac{2}{3}$. In these meridians the points of light were brought together respectively by $-\frac{1}{6}$ and $-\frac{1}{10}$, and the myopic astigmatism was fully corrected by a sphero-cylindroid lens, $-\frac{1}{10}$ ⊂⊃ $\frac{1}{16}$ cy.

Mr. D., myopic astigmatism; the images apart in one meridian 5 inches, in the other $1\frac{1}{2}$. $\frac{200 \times 0.16}{5} = \frac{3200}{5} = 6\frac{2}{5}$. $\frac{200 \times 0.16}{1.5} = 20$. A glass $-\frac{1}{5.5}$ corrected the greatest, and $-\frac{1}{20}$ the least myopic meridian, and a spherical and cylindrical of $-\frac{1}{20}$ ⊂⊃ $\frac{1}{8}$ cy was ordered.

It will be observed that by the English measure the formula is so simple that it can most readily be remembered, viz., 200 × 0.16, divided by the distance between the lights; and that a separation apart of 1″ = $\frac{1}{32}$ of ametropia. I have constructed a table which will save the slight trouble of making even this short calculation.

Distance of images apart.	Degree of ametropia.	Distance of images apart.	Degree of ametropia.
$\frac{1}{2}''$	$\frac{1}{64}$	5″	$\frac{1}{6.5}$
1	$\frac{1}{32}$	6	$\frac{1}{5.3}$
$1\frac{1}{2}$	$\frac{1}{20}$	7	$\frac{1}{4.5}$
2	$\frac{1}{16}$	8	$\frac{1}{4}$
3	$\frac{1}{10}$	9	$\frac{1}{3.5}$
4	$\frac{1}{8}$	10	$\frac{1}{3.2}$

In selecting a glass for the higher degrees of ametropia, its distance from the nodal point must be considered, and a lens chosen for myopia $\frac{1}{2}''$ stronger, and for hypermetropia $\frac{1}{2}''$ weaker, than that which would be required after a calculation by the present method.

Having satisfied ourselves that an ametropia does exist in any given case, and that the visual axis is too long or too short, we can measure the axis with precision by using the Listing eye for comparison. We know that when an object is placed so near the eye as to give divergent instead of parallel rays, its image must fall behind the position of the posterior focus.

These points of emission and convergence are the conjugate foci, and are found by the formula $f' f'' = F' F''$; f' being the distance of the object from the anterior focus, and f'' the distance of the image from the posterior focus; F' and F'' being the known quantities of the anterior and posterior foci. The proportion is $f' : F' :: F'' : f''$; hence $f'' = \frac{F' F''}{f'}$.

In the case of Mrs. G. we found a myopia of $\frac{1}{6.5}$, and we know that an object distant $6\frac{1}{2}$ inches from her nodal point has its image on her retina. Should we desire to ascertain how much her visual axis is too long, assuming with the best authorities that it should be normally 22.23 mm., we subtract from $6.5 = 165$ mm. the distance from nodal point to anterior focus $= 20$ mm., and we have $f' = 145$; to find $f'' = \frac{F' F''}{f'}$ we say $f'' = \frac{20 \times 15}{145} = 2.07$. The retina is 2.07 mm. distant from its proper position, and her axis is therefore $22.23 + 2.07 = 24.30$ mm. in length.

The same formula is used for hypermetropia; but as the distance from the nodal point to the object is negative, f' is found by adding the distance of the point of convergence behind the eye to the distance from the nodal point to F', and with hypermetropia of $\frac{1}{6.5} = 165$ mm. $f' = 165 + 20 = 185$, $f'' = \frac{20 \times 15}{185} = 1.6$. Subtract this quantity from 22.23, and we have the length of axis which gives rise to this degree of hypermetropia $= 20.63$.

An instrument for making these examinations has been constructed for me by Mr. Zentmayer, which consists of four disks of sheet-brass $1\frac{1}{2}$ inch in diameter, attached together by a pivot passing through a small projecting handle upon each disk.

No. 1 has in its centre a single perforation 1 mm. in diameter.
“ 2 “ 12 perforations, ½ mm. apart.
“ 3 “ 2 “ 3 “ “
“ 4 “ 2 “ 4 “ “ those in the last three disks being all ½ mm. in diameter.

It is known that when an ametropic eye regards a distant point of light, a circle of diffusion must fall upon its retina; and that by the exclusion of peripheral rays, by means of a small perforation in an opaque screen, definition may be so much improved as to enable the point of light to be distinctly seen. A rapid to and fro motion of the screen will bring other portions of the diffused circle on the retina under the influence of the diaphragm, and the test-light will to the observer appear to dance in accord with these motions. Screen No. 1 is used for this purpose.

The entire circle of diffusion may be influenced by a series of perforations by the use of disk No. 2, through which the test-light will appear to the observer multiplied.

No. 3 has fixed in a groove a small slip of ruby-coloured glass, which may at will be pushed over one of its holes, and thus colour one of the double images of the test-light red. Myopia is distinguished from hypermetropia in this manner, and this disk is used when the point of light is employed instead of the ordinary test-types, and a glass is empirically sought for which will fuse the two images and correct the ametropia. The overlapping space is larger than in disk No. 4, the double images are more easily found, and the examination of dispensary patients or children is made with precision and rapidity.

Disk No. 4 is employed for the calculation of ametropia in the manner and by the formulæ above described.

Art. XIV.—*Poisoning by Strychnia Successfully Treated by Bromide of Potassium, with some Remarks on the Therapeutical Properties of the Bromides.* By Charles B. Gillespie, M. D., of Freeport, Pa.

I was called, December 17th, to a man, some miles in the country, who, the messenger reported, had fallen down in a fit, and had violent cramps. I found the patient lying on his face on a small trundle-bed, with his hands tightly clutching the bed-frame, and at every movement of the attendants thrown into the most violent clonic spasms. On lifting his head I recognized the patient as one who had that same morning purchased from my clerk three grains of strychnia for the alleged purpose of killing rats. It was evident that he had taken the poison himself, and the wretched man confessed that he had taken nearly all the strychnia some two hours before, for which he was now heartily sorry, and begged me to save him, solemnly promising, that if his life were only spared this time he would never attempt the like again.

This short explanation was interrupted half a dozen times by the most terrible spasms. His pulse was 70, hard and contracted; respiration good. The whole surface of the body was quite cold; great anxiety in the expression of the face; sight and hearing perfectly normal. On giving him drinks, the great difficulty was in getting the cup to his mouth without throwing him into convulsions; but when once there, he would gulp the contents down spasmodically in great mouthfuls. He had but little control over his arms; as soon as he let go his grasp on the bedstead they would jerk violently, and continue thus until he laid hold of something solid and immovable.

The spasms were evidently becoming more violent and frequent, and beginning to implicate the muscles of respiration. Not having the remedy I desired with me, I gave him a teaspoonful of the fluid extract of hyoscyamus, and then hurrying home weighed out one ounce of bromide of potassium, which I dissolved in three ounces of water. Of this solution I ordered one-half ounce every thirty minutes; and I felt so confident of its efficacy in this case that I entrusted the administration of the remedy to a carefully instructed attendant, and did not revisit the patient till next morning, when I found him out of danger. The paroxysms had gradually become less violent and frequent, and by the time the last dose of bromide was taken at midnight, he was able to get up without assistance and walk to his own room. The only bad effects remaining were excessive muscular and nervous prostration, with an occasional slight convulsive shudder, which, however, entirely passed off through the day, and in thirty-six hours' time he was up and at his usual business.

I am confident, that but for the prompt administration of large doses of the bromide my patient would not have survived. How much the large dose of hyoscyamus had to do with the result I am not prepared to say; it produced a free and painless catharsis, and may have aided in relaxing the spasms. But to the well-known effect of the salt over the anterior or motor portion of the spinal cord, the good result in this case is especially to be attributed. The physiological effects of the strychnia and bromide of potassium are, I am sure, directly antagonistic. In this case, the patient had taken fully two grains and a half of pure strychnia, for I obtained the paper in which the strychnia was wrapped, and found that all of it was taken save about one-half grain that adhered to the paper, and which I afterwards weighed. This certainly was sufficient to destroy life in any human being.

I may here be pardoned for saying something about my use of the bromides in the practice of my profession. The first manufacturers of bromine and its compounds, in this country, were Drs. David Alter and E. Gillespie, of Freeport, Armstrong Co., Pa. This was more than twenty-five years ago; and it is to them I owe my first knowledge of the bromides and their use in medicine. For more than eighteen years I have used the bromide of iron and the bromide of potassium almost constantly in my practice. The bromide of iron especially is a great favourite, using it almost entirely to the exclusion of iodine in its outward application as a resolvent. Internally, it has proven, in my hands, to be one of the best chalybeates in use. In chlorosis, and all female irregularities, there can be nothing better. And in chronic diarrhœa, in urethral or vaginal discharges, it is a most valuable remedy. In many years of practice, I have never yet known it to fail in curing erysipelas, whether traumatic or idiopathic. My method of treating erysipelas is to freely paint the affected surface with the solution two or three times a day, at the same time giving the remedy internally. In diphtheria and croup, it has been my chief dependence. In the anginose and malignant forms of scarlatina I have tried it effectually, but without much apparent benefit. In senile catarrh and chronic bronchitis, where there is much expectoration and cough dependent upon its exudation into the air passages, it is a first class remedy, taken into the stomach and used occasionally by inhalation.

My experience with the bromide of iron proves its great value. It is always reliable and safe, and in the form in which I use it, is quite palatable and easy of assimilation. My formula for preparing the bromide is the following:—

Take of bromine 1 pound, water 4 pints, small iron nails 3 ounces and 2 drachms. Pour the water into a one gallon glass bottle, and then add the bromine, and lastly the nails. Keep the bottle in a moderately warm place until reaction ceases; the union of the bromine with the iron will develop a great amount of heat, for which reason the glass ought to be well annealed. After the heat has passed off, decant the solution from whatever impurities may be in the iron, and keep in well-stoppered bottles. The dose of this solution is ten drops or less, three times a day, and may be given in sweetened water, or, what is better, in simple syrup. For external use, the solution should be painted on with a feather or small brush. For children, or as an application to parts of the body, where the skin is thin and sensitive, the solution should be diluted with water. Sometimes, when applied undiluted to the thighs or inner arm, it causes a great deal of pain, which, however, may be easily removed by the free application of the spirits of turpentine.

I have had many years' experience with the bromide of potassium, and have used it in a variety of diseases. In rheumatism, it has at times been of signal service; in various forms of spasmodic complaints I had found it extremely beneficial, without, however, being at the time aware of its true physiological power over the spinal cord.

ART. XV.—*Case of Vesico-Vaginal Fistule in a Person labouring under Constitutional Syphilis; with Remarks.* By NATHAN BOZEMAN, M. D., of New York.

(CASE VII. *Seventh Series commencing Oct.* 1867.)—On the 6th of November, 1868, Prof. Isaac E. Taylor, of this city, invited me to examine a case of vesico-vaginal fistule at the Charity Hospital. D. J. C. Black, one of the house physicians, has very kindly furnished me with the following history:—

"L. H:, æt. 34, widow, admitted to the Charity Hospital March 14, 1868; has had four children, first two twins, and the last eight years old; has had irregular and painful menstruation since the birth of her first child. About six years ago, broke a glass syringe in her vagina, followed by profuse hemorrhage, and very soon afterwards a flow of urine, none passing naturally; has been operated upon three times for closure of the opening in the bladder, the last operation having been done on the 12th of October, 1868."

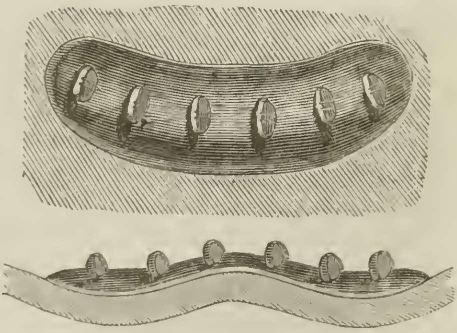
In these operations, I was informed, Dr. Sims's interrupted silver suture was employed.

On examination, I found the fistule sufficiently large to readily admit two fingers into the bladder; it occupied the root of the urethra, and the greater part of the trigone of the bladder, and therefore belonged to the class of urethro-vesico-vaginal fistules. The edges were double their usual thickness, and somewhat indurated; vesical mucous membrane around the opening highly congested and extremely sensitive. The slightest touch with the finger produced severe pain and vesical tenesmus, resulting in protrusion through the opening of the superior wall of the bladder. Vagina above the fistule presented a measly appearance; urethra patulous. Preparatory treatment consisted in warm water injections into the vagina, and in the application, on every other day, of argent. nit. ʒj to ℥j of water to the edges of the fistule and to the vesical mucous membrane around the opening.

Condition of the parts rapidly improved. The usual constitutional treatment for syphilis had been employed from the time of admission until now with but little interruption.

On the 17th of November, assisted by Prof. Taylor, and one or two of the house physicians, I proceeded to operate before the medical class of the Bellevue Hospital College. The patient was secured on my operating chair, and brought under the influence of chloroform. My large size self-retaining speculum was introduced, and the vagina dilated to its fullest extent, which brought into view every part of the fistulous opening The first stage of the operation was completed with great trouble, owing to the almost constant vomiting and straining of the patient. The embarrassment was further increased by profuse hemorrhage and the darkness of the evening. The opening when pared admitted readily three fingers into the bladder. Six interrupted sutures secured with my button were found necessary to effect closure. Fig. 1 illustrates the size and shape of the button, front and edge views. A male elastic catheter (No. 8) was used. The patient, on being carried back to her bed from the operating room, remained in an unconscious state for three or four hours. During this time the vomiting and bearing down continued as it had through all the different stages of the operation. On regaining consciousness, she complained of great soreness of the abdomen, for which fifteen drops of Magendie's solution of morphia were given, to be repeated *pro re nata*, the object being to obtain its fullest effect.

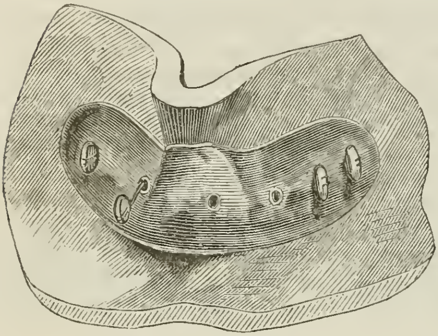
Fig. 1.



For six days after the operation, the pulse varied from 112 to 128. During this time there was more or less vomiting and straining, which could not be restrained by morphia, though administered by mouth and by hypodermic injection. Tenderness over the abdomen also continued.

On the night of the fifth day, during one of her attacks of vomiting, the patient felt something escape from the vagina, which she preserved and showed to me on the following morning. This I found to be a shot from my suture apparatus, both ends of the wire having broken beneath it just where there is always the greatest strain. Upon examination with the finger, I discovered it was the third, the one to the right of the urethra. The day before this occurred there had been an action from the bowels attended by great and violent straining, the catheter being forced from the urethra by the effort. No doubt the suture gave way at this time. Notwithstanding all of these untoward accidents and symptoms, not a drop of urine was seen to pass per vaginam up to the eighth day, when the suture apparatus was removed. I now ascertained that two of the other sutures had given way (4th and 5th), probably in the same manner as the first which had broken. The first two and the sixth were all that remained, which being at the two ends of the button, held these parts in position, while the middle doubled upon itself almost at right angles. Fig. 2, front view, is intended to show the apparatus as it was at the time of its removal. The edges of the fistule were found united throughout, except at a point between the third and fourth sutures, just opposite the vesical end of the urethra. Here there was slight gaping of the line of union, though fortunately the separation only extended about one-half of the thickness of the cicatrix. Not a drop of urine escaped. This point was brushed over with a solution of nitrate of silver, the catheter replaced, and morphia continued as before. The next day the catheter was removed, and ordered to be introduced only every two or three hours.

Fig. 2.



The treatment was thus continued until the third day, when it was discovered that a few drops of urine escaped per vaginam. The fourth day nearly all the urine escaped this way. An examination of the parts now revealed complete separation of the edges at the point above mentioned, the opening into the bladder being the size of a crow-quill. This was again brushed over with nitrate of silver, the application ordered to be repeated every second day, the object being more to keep the parts in a healthy condition, than in any hope of procuring closure by granulation.

Dec. 8th, some two weeks after the removal of the suture apparatus, the opening had attained the size of a No. 12 bougie, the cicatrix being still thick and firm on either side.

The patient now left her bed for the first time, the application of nitrate of silver being continued as before ordered. The fistule continued to enlarge, and at an examination some two weeks later, was found nearly its original size, and very much as first seen in other particulars.

In the month of April last, nearly eighteen months after my operation, I visited the Charity Hospital with Dr. Foster Swift, one of the attending physicians, and had an opportunity of examining the parts again. The patient stated that since I had last seen her she had undergone two operations, which were performed by one of the attending physicians, without any permanent benefit. Sims's simple interrupted silver suture, I learned, was again employed, making five applications of this form of suture. I now found the opening somewhat narrowed from cicatricial contraction, the edges being still thick and unhealthy. Only about one-third of an inch of the outer extremity of the urethra remained, the balance having been entirely destroyed. A groove or depression three-fourths of an inch long occupied the former site of the canal; from the bottom of this the sides gradually ascended, and were hard and unyielding; no defined borders existed.

Remarks.—The occurrence of incontinence of urine in this woman two years after the birth of her last child renders it very conclusive that the injury did not result from this cause. In explanation, how much is to be ascribed to the circumstance of breaking a glass syringe in her vagina, I cannot say. *This* I do know, she had constitutional syphilis when I first saw her. Whether this resulted from a chancre in the site of the fistulous opening, or elsewhere, there were no means of ascertaining definitely. It was possible for the fragments of the glass syringe to have cut through the vesico-vaginal septum at the time of the accident, but then it cannot be reasonably supposed that such a large opening would have resulted. If injury did result to the vagina from this cause, the explanation most probable is, that a chancre already existed about the pudendum, and inoculation took place, followed by ulcerative perforation or destruction and incontinence of urine.

As to success, I must confess that when Prof. Taylor invited me to see the case, I was not at all sanguine. I undertook the operation as a duty, believing that the patient had everything to gain and nothing to lose by submitting to the trial. I have never met with a vesico-vaginal fistule occurring under such circumstances before. Some years previously I had treated a case of recto-vaginal fistule, the result I had reason to believe of syphilis. The opening in this case was quite small and situated just above the sphincter ani. After a long course of constitutional treatment, consisting mainly of iodide of mercury and iodide of potassium, I laid the perineum open to the fistulous track, as I am in the habit of doing in such injuries resulting from other causes; then paring off the edges of the latter, I closed the whole by the quilled suture. The success in this case was permanent, as observed two months after the operation. With this experience, therefore, I felt justified in making the attempt in the case in question. As to the result of the operation *per se*, it could not have been more satisfactory at the time the suture apparatus was removed. The slight gaping found in the line of union at the point named would have been of no consequence under ordinary circumstances, the closure on the vesical side being complete. There need not have been any fear of the slight fissure on the vaginal side not closing up by granulations. The failure was entirely due to constitutional impairment; and seeing this, I had no hope that any future efforts in the case would be attended with any permanent benefit. The result of the two operations since fully confirms this opinion.

The almost complete destruction now of the urethra renders an operation and successful result quite impossible. Even could the tissues be brought into a relationship for reparation by plastic procedure, there is not the slightest probability that the bladder would have any power of retention.

A word now regarding the suture apparatus. Never in the whole course of my experience with the button suture have I found it put to so severe a test as in this case. The breaking of three of the sutures out of six (silver wire No. 26) furnishes the most conclusive proof of the fact. Two principles of this form of suture, regarded as of the greatest practical utility, were beautifully illustrated in the result of the operation. First, the non-cutting of the sutures under the greatest strain. Second, full transverse extension and support of the approximated edges of the fistule.

With frequent spells of vomiting and straining, and, on the fifth day, an action of the bowels, with expulsive efforts almost equal to labour-pains, there could be no question of the intense dragging upon the tissues included by the sutures. Notwithstanding the heavy strain upon the wire, sufficient to cause them to break at their doubled ends, the cutting of the tissues was so slight as scarcely to attract attention. Simple interrupted sutures, with the same strain, I am positively certain would have cut out long before the maximum strength of the wire had been reached—nay, had even the number of sutures been increased three, four, or five-fold the number used with the button, the ultimate result would have been the same, except that the size of the fistule would have been greatly increased from the actual loss of tissue. The included tissue in that event would have sustained such interference with its circulation and nutrition, by the almost uninterrupted barrier of sutures, and consequent traction upon them, that sphacelation or sloughing would have been inevitable. On the contrary, the button or splint did not require the sutures to be placed nearer than a third of an inch, allowing free circulation of blood between them. By this addition one-third of the strain upon the sutures was taken off or neutralized, hence the avoidance of cutting or sloughing of the included tissues from strangulation.

Now, as to the advantage of the transverse extension and support of the approximated edges of the fistule by the button, there can be no doubt, as shown in the result of this case. In the employment of the simple interrupted sutures, however thick they may be crowded in the tissues, there is always shortening of the line of the approximated edges under heavy strain, due to stretching and narrowing of the tissues outside of the sutures. This may be illustrated by stretching an elastic string, where increased length is secured at the expense of diminished width. In a round piece of buckskin the same thing is seen by stretching it in opposite directions, shortening of the transverse diameter here being due to folding or puckering of the leather because there is no force to prevent it. So it is with the vagina, an elastic canal, it is capable of longitudinal extension, with corresponding narrowing, and *vice versâ*, transverse distension, with corresponding shortening; and what is true of it as a whole applies with equal force to either wall, or any part of the same.

In solutions of continuity, therefore, when the sides of the rent or opening are drawn together by the application of great force, as in the case of fistules, attended with much loss of substance, narrowing or contraction of the parts transversely takes place as shown by the puckering or fluting of the edges of the fistule.

The result of this is imperfect coaptation and consequent diminution of the chances of success. Doubling or trebling the number of sutures, it is true, may counteract to some extent this tendency to puckering, but at the same time, I repeat it, increase the risk of strangulation of the included tissues and consequent sloughing.

How then is this shortening and puckering to be prevented by the button? and why is it the interrupted sutures are made more valuable and effective by its addition? A satisfactory answer to these questions would necessitate a consideration of the mechanism both of the interrupted and twisted sutures, which can only be done by illustrations. This would far exceed the limit of these remarks. Suffice it to say, in the combination of these two forms of suture, under the name of button suture, all the *advantages* of each are realized. The independent action of the former, introduced upon a straight or curved line, and spaced so as not to interfere with the circulation, is fully secured under all circumstances. The transverse support and steadiness of the line of approximation of the latter are attained no less efficiently. Each suture introduced through the tissues is doubled upon itself, and passes through the holes in the button equally spaced, as so many bolts to be clinched upon the top of the button. Thus secured, the edges of the fistule are drawn into a groove on the under surface of the button out of a direct line, and thereby relieved of one-third of the strain or retractive force upon them. Each interspace being preserved, the longest diameter of the fistule, transverse or longitudinal, is maintained throughout the treatment with mathematical precision. However great the strain or tendency to recontraction (as after division of cicatricial bands), no strangulation of the tissues follows; no puckering or over-riding; no eversion, no inversion of the edges can take place. The extent and efficacy of the protection afforded the included tissues by the button could not be more beautifully illustrated than in this case, as shown by the two cuts. Fig. 1 represents a button two inches long, applied to the transverse diameter of the fistule, nearly the same length, and secured by perforated shot compressed upon the double ends of the six wire sutures, passing upwards through it. As additional security, the ends of the wire are turned down by the sides of the shot after they were firmly compressed. As to the adaptation of the apparatus, nothing more could have been desired. Yet upon the fifth day, with all this apparent security, the doubled ends of the 3d, 4th, and 5th sutures broke beneath the compressed shot, in consequence of the extraordinary strain upon them. They broke in the order named. The button losing its support at these points, rose up at once in the form of an arch, from transverse contraction of the vaginal wall induced by longitudinal retraction of the same. The tissues beneath obeying the same law, followed the under surface of the button, forming with it a similar arch. In consequence, the new cicatrix was put upon the stretch, hence the slight gaping of it discovered upon the removal of the button on the eighth day. Fig. 2 represents the extent of the arching presented at the time of removal, as shown by the missing and loosened shot.

The shortening of the cicatrix, in a direct line, was half an inch. Had this accident occurred earlier in the treatment, it is possible that a total failure would have attended the operation, at all events to the extent of the broken sutures. As it was, the union being sufficiently firm when it took place, only the slight gaping previously described took place.

The many advantages of my operating chair, and self-retaining speculum, as illustrated in this case, can only be mentioned here. Suffice it to say, that without them, the completion of the operation under the circumstances, would have been impossible.

ART. XVI.—*Cases of Ovariotomy.* By WASHINGTON L. ATLEE, M.D., of Philadelphia, Fellow of the College of Physicians of Philadelphia, etc. (Reported by J. EWING MEARS, M. D., of Philadelphia, Member of the Pathological Society of Philadelphia, etc.)

CASE 210. *Monocystic Ovarian Tumour; Adhesions; three Tappings; Operation October* 9, 1869; *Incision two and one-half inches; Recovery.*—Mrs. F. F., of Springfield, Illinois, æt. 26, married, consulted Dr. Atlee October 6, 1869, and gave the following history: Menstruation began at the age of 15, and continued regular for three or four months; was then suspended for six months, and re-established by means of emmenagogues; was married at the age of twenty; has had one child, now five and one-half years old. She recovered well, and nursed her child twenty months; menstruation reappeared eighteen months after childbirth; was suspended again for five months, and recurring, remained regular up to the present time. The quantity has varied at times, being sometimes slightly clotted, and occasionally painful.

When sixteen years old, while driving, the horses ran off, and in jumping from the carriage she struck her left side, in the upper portion of the lumbar region, at which point a tumour appeared, but which soon after disappeared.

In May, 1867, she noticed a general enlargement of the abdomen. It was hard, but not painful on pressure, and continued to enlarge for six or eight months, when it subsided to a great extent. She attributes the subsidence of the enlargement to a discharge of blood and water from the vagina which occurred as the result of a sudden effort made in springing out of bed in fright. Although menstruating, she regarded herself pregnant, and feared miscarriage would follow the discharge from the vagina. The discharge ceased in about two days, and in a short time she began to increase in size, and in two months was as large as she was at the time of the accident. The idea of pregnancy was not abandoned until ten or eleven months had expired, when she was treated for ascites.

February 10, 1869. Tapping was first performed, removing two and one-half gallons of fluid, the colour and consistence of stationer's mucilage, weighing ten pounds to the gallon. Diuretics and hydragogues were still administered under the belief that the disease was ascites. Notwithstanding the employment of drastic cathartics, and other active remedies, the fluid reaccumulated, and tapping was again resorted to, April 22, removing one and one-half gallon of fluid of the same character as the first. In June, Dr. B. M. Griffiths, of Springfield, was consulted, and pronounced the disease ovarian dropsy. Dr. G. performed tapping on the 27th of July, removing two gallons of fluid, somewhat lighter in colour than that evacuated on the previous occasions, but thick, stringy, and albuminous. After tapping, the fluid usually reaccumulated in about six weeks so as to render its presence perceptible. When the abdomen is distended with the fluid she suffers from indigestion and vomiting, which are always relieved by tapping. After the evacuation of the fluid the abdomen became flat, and the cyst could be easily felt through the relaxed walls; no secondary growth could be detected. After the last tapping, Dr. Griffiths applied compresses and a tight bandage, with a view to prevent refilling of the cyst.

October 6. Examination to-day shows the abdomen distended to a size larger than that of a woman at full period of pregnancy, with all the signs indicating the existence of a monocystic ovarian tumour, filled with a dense fluid. The pelvis is free, the os and cervix are intact; the sound enters two and one-half inches, and the uterus is movable. The patient is somewhat reduced in flesh, but is in tolerably good health.

9th. Ovariotomy was performed, the following gentlemen being present: Drs. Drysdale, Burpee, Mears, Keen, Hoffman, of Philadelphia, J. H. Tinkham, U. S. N., Wikoff, of Princeton, N. J., and Mr. Street, medical student. The anæsthetic mixture (ether two parts, chloroform one part, liquid measure) having been administered, an incision, two inches in length, was made in the linea alba, midway between the umbilicus and pubis, through the parietes of the abdomen down to the cyst. The abdominal walls were unusually thick, containing but little adipose tissue, and very vascular. The cyst was punctured, and two and one-half gallons of thick gelatinous fluid removed. Two slight adhesions, one omental and one parietal, existed, which were readily detached, and the cyst was extracted through the opening, which was enlarged one-half inch in order to facilitate its removal. The pedicle was broad, thick, and vascular, and was encircled by the Fallopian tube. A coil of intestine was attached to its left border; this was detached, a ligature applied to the pedicle so as to condense it, the clamp adjusted, and the tumour separated. Considerable hemorrhage occurred from the incision and omental adhesion; the latter was inclosed in a ligature and secured between the edges of the upper part of the incision by a pin. A large isolated omental vessel was knotted and returned to the abdominal cavity. The pelvic cavity was cleansed, and the incision closed by two iron wire sutures, the compress and bandage applied, and the patient placed in bed in less than twenty minutes from the time the operation was commenced.

The tumour was monocystic, and consisted of the left ovary; the walls were thick, and with the contents weighed about twenty-six pounds.

No nausea or vomiting occurred, and the patient made a rapid recovery, returning to Springfield in two weeks after the operation.

Dr. Mears reported the following as the result of an examination of the fluid.

Colour pale-yellowish, very viscid, gelatinous, consistence that of thick syrup. Specific gravity 1010; albumen about 75 per cent. The microscope showed masses of granular cells, epithelial scales, and blood-globules.

CASE 211. *Polycystic Ovarian Tumours; Omental and Mesenteric Adhesions; one Tapping; Operation, October 29th,* 1869; *Incision six inches in length; Death on the 5th day.*—Mrs. T. C., æt. 51, married, native of Ireland, consulted Dr. Atlee September 28th, 1869. She states that menstruation began at the age of sixteen, and, with the exception of the year succeeding her arrival in this country, she was regular until the age of 49, when the menses ceased. The cessation of the menses was followed by hemorrhoidal hemorrhage to a very great extent, and which continued more or less until January, 1869. She has been twice married, the first time at 26, and the second at 37 years of age. By the first husband she had one child, and one by the second also, now nine years old. She suffered miscarriage once.

She states that she first noticed a swelling in the lower part of the abdomen, inclining to the right side, in March last. It did not present itself in the form of a distinct tumour, but was a diffused soft swelling, and increased rapidly in size. Before the abdominal enlargement occurred, she was a very large fat woman, weighing 170 pounds; has recently lost flesh very rapidly, and complains of excessive flatulency. The measurement round the waist is 28 inches, round the abdomen, in a line with the umbilicus, 50 inches, from the sternum to umbilicus 15 inches, from umbilicus to pubes 24 inches, and between the superior spinous processes of the ilii 31 inches.

The abdominal enlargement is very great, the protuberance being much greater below than above. Below the umbilicus the walls of the abdomen are œdematous.

The characteristic signs of ovarian dropsy are well marked; one large cyst can be distinctly traced filling up the abdominal cavity, and containing in its left wall a polycystic mass; the os tincæ is thrown back and is roughened. The sound enters one and a half inches and comes away stained with blood. The pelvis is free.

September 30th, 1869, in company with Dr. Burpee, Dr. Atlee tapped the patient and removed thirty-six pints of olive-coloured, albuminous fluid. Owing to the œdematous condition of the abdominal wall the short trocar used in tapping, evacuated only the ascitic fluid contained in the cavity, and it required the largest trocar to penetrate the cyst and evacuate its contents.

A specimen of the fluid was subjected to microscopical examination by Dr. Drysdale, and pronounced ovarian in character.

The fluid reaccumulated very rapidly, and the patient urgently requested operative interference. Although the case was regarded a fair one for operation, still the circumstances of the patient were such as militate against a successful result. She was in poor circumstances, occupying a room on the lower floor in a small street, and unable to secure appropriate care and nursing. As there was no hospital or charity to which she could be sent, and command Dr. Atlee's services, he felt it his duty, unfavourable as the surroundings were, to render the aid solicited.

Oct. 29, 1869. Ovariotomy was performed; Drs. Aulick, of Virginia, Grove, Hoffman, Mears, and Schofield, of Philadelphia, being present. The patient being fully anæsthetized, an incision, four inches in length, was made in the linea alba down to the peritoneum. On incising the peritoneum large quantities of ascitic fluid escaped; introducing the finger, numerous long and tough bands of adhesions were broken up, discharging ascitic fluid, which had been retained in cells or pockets formed by these bands. Perforating the large cyst with the trocar, several quarts of gelatinous fluid were removed. The incision was now extended two inches, and the hand introduced to ascertain the nature and extent of the adhesions; these were found to consist of extensive and firm parietal, intestinal, and omental adhesions; the parietal and omental attachments were severed, and the tumour extracted still attached to the mesentery and intestines; these were separated from the tumour by dissecting off the outer layer of the cyst-wall, and leaving it attached to the mesentery. The pedicle was very thick and short; the clamp was applied close to the uterus, and the tumour was detached.

During the operation the intestines were extruded by the effort made in vomiting. At the point of attachment to the tumour there was a space, about two and a half inches in diameter, from which a general oozing of blood occurred. The bleeding vessels, eight in number, were secured by silk ligatures, the same kind as employed by Mr. T. Spencer Wells, and which had been presented by that gentleman to Dr. Atlee; these ligatures were cut off close to the knot, and the intestines carefully returned to the abdominal cavity. The portions of omentum which had been detached from the tumour were retrenched, divided into three fasciculi, and secured between the edges of the wound by suture; the incision was closed by the iron-wire suture, and the patient placed in bed.

The tumour consisted of the right ovary, was polycystic, and weighed about forty pounds.

The patient reacted well from the operation, and, with the exception of a good deal of nausea and vomiting, progressed very favourably for the three succeeding days. On the fourth day she began to sink, and died from exhaustion on the fifth day. The inefficiency and disobedience of the attendants, and the comfortless circumstances surrounding the patient, contributed largely in producing the unfavourable result.

Dr. Mears made the following report of an examination of the tumour and its contents:—

"The tumour was found on examination to be polycystic, as diagnosed prior to the operation, consisting of one large cyst, with numerous secondary cysts, of various sizes, projecting from its internal surface. The contents of the secondary cysts varied in character—the larger containing a mass of granular adipose matter, the smaller usually containing the viscid, gelatinous fluid which filled the large cyst. The sac was of the usual density and firmness, except at those portions which covered the adipose secondary cysts. At these points it was very friable, and broke down under slight force. Microscopical examination of the contents of the larger secondary cysts showed the mass to be composed of granular corpuscles, with numerous oil-globules. The fluid contents were dark greenish in colour and very viscid. The specific gravity was 1010+; an excess of albumen was present, about twenty-five per cent. The microscope revealed the presence of granular cells, blood-corpuscles, oil-globules, and epithelial scales."

Remarks.—In the above case it will be noticed that the ligatures applied to the vessels of the mesentery were cut off close to the knot. Although this method is recommended and practised by some of the best ovariotomists, Dr. Atlee does not give it his sanction nor adopt it from choice; he always prefers to bring the end of the ligature outside, so that it can be removed. In the case above described, however, the ligature, if brought outside, would have traversed the abdominal cavity from the back part to the front, through coils of intestines, thereby endangering strangulation. As the less of two evils, it was determined to cut them short. He regards it improper to allow a foreign body to remain in the cavity of the peritoneum, as it is impossible to predict the trouble which may occur from its presence—it should never be placed there from choice.

CASE 212.—*Polycystic Ovarian Tumour, complicated with Ascites; Inveterate Adhesions; Tapped forty-three times—Operation Nov. 4th, 1869; Incision five inches in length; Death on the fourth day.*—November 3, 1869, Mrs. M. of Newcastle, Lawrence Co., Pa., was seen by Dr. Atlee in consultation with Dr. M. P. Barker, of that place. She is forty-eight years old, married, and has borne two children, the youngest eight years of age. Menstruation began at the age of seventeen, was regular for some time, and afterwards became profuse and clotted.

Three years and a half since she first noticed an abdominal enlargement which increased very rapidly. The first tapping was performed April 14th, 1866. Between this time and October 23d, 1869, when she was last tapped, the number of tappings amounted to forty-three, and the estimated quantity of fluid evacuated to over two hundred gallons; the largest quantity of fluid taken at any one time was six and a half gallons. Soon after the first tapping she began to emaciate. Latterly paracentesis has been accompanied and followed by great exhaustion, and the last time death seemed inevitable.

The patient was confined to her bed greatly emaciated and anæmic, but in good spirits, with a pulse exceeding one hundred and twenty, and very feeble. Although tapped only eleven days before, she had again filled up to the same size. Examination showed the abdomen uniform in shape, rather pendulous, its surface coursed by enlarged veins, and fluctuation distinct. The characteristic signs of abdominal dropsy were well marked. Displacing the fluid by sudden pressure there could be detected a large polycystic tumour occupying a central position; hard masses were felt at different points. The upper portion of the large tumour was slightly movable, the lower portion was fixed and immovable.

The os and cervix uteri were pushed forward, the latter about three-quarters of an inch in length and normal; the body of the uterus is lost in a mass of indurated tissue, which is part of the central tumour. The whole is fixed and immovable. The sound enters the cavity of the uterus to the distance of two and three-quarter inches.

Diagnosis.—Polycystic ovarian tumour, complicated with ascites, and very grave pelvic adhesions, involving the uterus.

Prognosis.—Very unfavourable.

November 4th, 1869, ovariotomy was performed. The following-named gentlemen were present: Drs. M. P. Barker, D. Leasure, Jno. W. Wallace, J. S. Cossitt, J. B. Reinholdt, Peebles, and Wood, of New Castle, and Dr. Zimmerman, of Mt. Jackson.

The patient being under the influence of the anæsthetic mixture, an incision, one inch in length, was made in the linea alba, opening the abdominal cavity, and permitting the escape of several gallons of very transparent dark yellow-coloured fluid tinged with blood. The evacuation of this ascitic fluid reduced greatly the size of the abdomen. A large oval mass occupied the centre, with projections from it, particularly on the left side, extending as high up as the left hypochondrium. The finger was introduced into the abdominal cavity, and a careful survey made of the tumour and its attachments. It was found adherent to the parietes and surrounding viscera by extensive and firm bands. The pelvic cavity was occupied by the lower portion of the tumour, which was firmly attached by a sheet of dense adhesions to the brim of the pelvis, extending from one superior spinous process to the other. The uterus was found imbedded in this mass. The multilocular character of the tumour could be distinctly made out, its surface presenting large masses of hydatid-like bodies, with abraded granulated botryoidal surfaces, resembling uterine hydatids, and which no doubt exuded the fluid contained in the abdominal cavity. Two of the largest cysts were now punctured, giving exit to several pints of opaque, mucilaginous fluid. Another exploration was now made, and it was determined that the removal of the tumour could be effected. The incision was enlarged to the extent of five inches, the hand introduced, and the parietal and visceral adhesions detached. The omentum was found rolled up, forming a cord-like mass, as large as the middle finger, and traversing the anterior surface of the tumour, was attached to the brim of the pelvis. The upper portion of the tumour was gradually detached and turned out of the abdominal cavity. On inverting it, and exposing its posterior surface, the uterus and its appendages were found completely imbedded in the lower portion; this organ was liberated by enucleation, the pelvic attachments were broken up, and the tumour was removed. The pedicle, which was large and dense, was transfixed by a double ligature, secured and divided. Considerable oozing, venous in character, took place from the abraded surface of the pelvic cavity; five ligatures were required to control the hemorrhage which came from the posterior surface of the uterus; the ends of the ligatures were brought out of the external wound. The cavity was carefully cleansed, the clamp was applied to the pedicle, and the incision was closed by six wire sutures. Owing to the extensive adhesions it was impossible to determine the condition of the other ovary.

The ascitic fluid measured six and a half gallons; five of the cysts of the tumour were evacuated, the appearance of the fluid differing; the fluid of one of the cysts was like that contained in the abdominal cavity.

The weight of the tumour was estimated to be fifteen pounds.

Six or eight ounces of blood were lost. The patient bore the operation well, requiring occasionally some stimulation. On the day following the operation reaction was fully established. She died on the fourth day from exhaustion.

Dr. Atlee makes the following remarks upon the origin of the coexisting ascites in this case, and in others of a similar character:—

Remarks.—The above case is one of peculiar interest in several points of view. It belongs to the second class, as death was imminent before the operation. The point, however, to which I wish to call particular attention is the character of the tumour and its association with ascites. By reference to the *American Journal of the Medical Sciences* for January, 1844, a case is reported by my brother, Dr. John L. Atlee, of Lancaster, Pennsylvania, with a wood-cut representing an ovarian tumour of the description referred to. I was associated in that case with my brother, and took occasion then to differ from him in regard to the cause of the coexisting ascites. He "*attributed the ascites to the functional derangement of the abdominal and pelvic viscera and bloodvessels, occasioned by the presence of the tumours.*" My view was that the hydatid-like surface of the tumour threw off the fluid into the cavity of the peritoneum, where it accumulated and constituted the ascites. This is an interesting point in pathology. I have had this opinion corroborated by further experience, as several such tumours have presented themselves, and in every instance ascites, to a large extent, has coexisted. This peculiarity of an ovarian tumour, in my opinion, does not depend upon the presence of true hydatids, but arises in the following way: The fibrous coat of an ovarian tumour sometimes gives way over a secondary polycystic mass, which latter then develops itself, mushroom-like, exterior to the general cavity of the original cyst, and becoming an exhaling surface, and throwing out fluid constantly into the cavity of the peritoneum; the fluid, thus thrown out, containing the cells usually found in the fluid of ovarian tumours, as has been ascertained in one instance by the microscope. I have, also, observed the same hydatid-like appearance on the interior of the parent cyst, where the inner coat of the tumour had become abraded.

In all similar cases to the one just reported we are likely to have a large accumulation of fluid in the peritoneal cavity, while it is very rare to meet large quantities of ascitic fluid in ovarian tumours of the ordinary character.

TRANSACTIONS OF SOCIETIES.

Art. XVII.—*Summary of the Transactions of the College of Physicians of Philadelphia.*

1870. *March* 16. *Gunshot Wound of Lung.*—Dr. John H. Brinton read the following record, and introduced the patient.

J. W. B., E. Co., 57th Pennsylvania Infantry Volunteers, æt. 31, shot at Fair Oaks, May 31, 1862, by a ball from a sharp-shooter in a tree, at about 80 to 100 yards distance. The colonel (Campbell), who was shot at same time, and from same source, was hit by a conoidal ball, which was removed from his arm. It is probable that Barnes was also hit by a conoidal ball. The wound of entrance, the patient says, was like a clean cut, near the centre of the base of the scapula, the direction of the ball was downwards and forwards, and the ball lodged apparently behind the cartilage of the 7th or 8th ribs, about two inches from the sternum on the right side.

The patient states that at the time of injury, he felt as if he had been "hit hard on the back by a stick;" he also felt as if he was hurt or torn anteriorly behind the cartilages of ribs of right side. At the *moment* of injury, there was *no* shock, but instantly bloody expectoration, not copious, only two or three mouthfuls, *dark* red, not bright red. The dyspnœa great, but he did not faint. In a *minute or two* after being hit, he suffered from nausea, and some shock, but there was no vomiting. He did not fall. He was not able to lie down, on account of dyspnœa, but was able to sit. He rode, sitting on front seat of ambulance, to Savage's Station, was there placed on a chair, taken to James River, and then on boat to Philadelphia, where he was carried from depot to St. Joseph's Hospital (fully two or two and a half miles) on a furniture car, but during all the time from the day of injury to June 16th he did not lie down or leave his chair, the same one on which he was placed at Savage's Station. Immediately after being hit (within an hour), great emphysema from the jaw down to the pelvis on right side occurred, for which he was bandaged at Savage's Station.

June 4th, 1862, admitted to St. Joseph's Hospital, Philadelphia, from which he was discharged on the 16th of June, the wound having healed. He re-entered the hospital on the 24th of July, and was then treated for inflammation of the right pleura, and was discharged from the hospital early in December, 1862. Since that time, there has been constant pain in the right chest, aggravated by exposure. He married in 1862, after leaving the hospital in Philadelphia.

Since December, 1862, he has tried railroading, but found the exposure too great. Shopkeeping was too confining; could not continue as a street-car conductor, from inability to speak at times, consequent upon spasmodic action of diaphragm. Is now (March, 1870) the proprietor of a book-stall or newspaper stand in the open air. He now weighs about 121 pounds, having fallen to this from 150 pounds, his former weight.

He has hæmoptysis about twice a year, amounting to a few small mouthfuls of blood during the day, for two or three days. He has now such an attack. Has not had one for six months previously.

Examination of Chest by Dr. J. H. Brinton and Dr. S. W. Mitchell.—Measurements: Right chest, at level of inferior angle of scapula to middle line, one inch below right nipple, eleven inches. Corresponding measurement left side, $10\frac{1}{4}$ inches.

There is pain on pressure, on right side of spine, from 3d to 6th vertebra, between vertebral spines, and posterior scapular margin. The wound, which is perfectly cicatrized, is on a level with the 5th vertebra, and about $\frac{7}{8}$ of an inch from the posterior margin of the scapula. Great tenderness over all the muscles, between the posterior margin of scapula and vertebræ, and up to a point $2\frac{1}{2}$ inches above cicatrix, and $\frac{1}{2}$ below the middle of spine of scapula. Hyperæsthesia of surface in an area extending from 1 inch below to 2 inches above scar.

A very tender spot was detected, 5 inches below the posterior angle of the axilla, between the 7th and 8th ribs. Tenderness was also evident 2 inches in front of that point, and extending from the 5th to the 8th ribs.

On the front of the chest, tenderness on pressure commenced one inch above the right nipple, extending to the middle sternal line, and downwards as far as the margins of the costal cartilages. The extreme of tenderness was marked by a line drawn obliquely downwards from the right nipple to about the anterior margin of the 8th costal cartilage. General hyperæsthesia of surface existed over this tender region.

The patient experiences pain when he bends his body forwards; and when he wishes to seize an object on the floor, he crouches, bending both knees alike. He himself believes that the ball lies at the front and lower part of the right chest, and that it shifts when he attempts to laugh or sneeze, or bend forwards.

That some unknown lesion probably exists at the point indicated, we may readily conceive, and we are inclined to think that a sac of false membrane exists immediately behind the costal cartilage, and in the vicinity of the diaphragm; and that most probably this sac contains the ball; we think moreover that the sac is of some size, and that the ball is loose.

Auscultation.—Anteriorly the inspiratory and expiratory sounds were heard throughout both lungs, but they were very short and somewhat rough, owing perhaps to their speed. There was no loss of respiratory space at the site of the pain below the right nipple, nor was there any unusual dulness thereabouts.

Transmitted heart sounds were heard about 2 inches below the right nipple, marking, and to a certain extent confusing the respiratory sounds.

Percussion over the right lung anteriorly, even when practised with the utmost gentleness, produced great pain and dyspnœa; especially was this the case when percussion was made over the swelling at the costal margins, the supposed locality of the ball.

The upper part of the right lung was clear on percussion, shading down to the ordinary level of liver dulness, and becoming more dull over the costal swelling.

Posteriorly, respiratory sounds were heard over both right and left lungs, more distinctly, perhaps, over the left lung.

Dyspnœa.—This has been present in the case from the time of injury. It is greatly increased by certain positions. Thus he cannot sleep or lie upon his side; if he does so he very shortly awakes with violent paroxysms of dyspnœa. He is obliged, therefore, to sleep on the flat of his back, with his head low. He rarely sleeps well, and is awakened by the slightest touch, after which he sleeps more uneasily. Rests better if the preceding day has been a quiet one, free from excitement. If he laughs especially heartily, violent dyspnœa amounting almost to suffocation is induced, followed by great prostration.

Respiration.—The marked feature in Barnes's case is the rapid respiration. Usually when at rest it is a little slower than the heart beat, sometimes it is almost synchronous with the latter. On exertion the respiration rises rapidly, passing the heart pulse. Thus:—

1870, *Feb.* 27.—*Patient sitting quietly in his own room.* Pulse 74; respiration 66.

March 3.—*One hour after supper*, having walked about a mile, and examined in *standing* posture. Pulse 90; respiration 76 to 78. At same time examined in *recumbent* posture. Pulse 78 to 80; respiration 64. On same evening the patient was directed to run twice up and down one short flight of stairs. Then pulse 100; respiration 108 or 110.

13*th.*—The respiration and cardiac movements were synchronous, viz., 78. A little exercise sent the pulse to 95 and the respiration to 125.

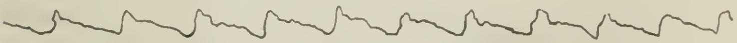
14*th.*—After a short walk, pulse 100; respiration 120. From the date of the wound until March, 1863, his breathing was almost thirty times to the minute. At that time over-exertion caused the present rapid rate.

Prior to his being wounded this patient was an accomplished diver, and could hold his breath for over a minute; now he can hold it only for a few seconds. When he does so the heart-pulse becomes somewhat slower, a proof of the integrity of the pneumogastric nerve.

Heart.—The heart does not seem to be injured seriously by the long-continued speed of the respiratory movements, at least its valves have not suffered, although the first sound is often faint, as if there were a feeble left ventricle. This would seem likely to be the case from the appended sphygmograms, taken by Dr. Mitchell, and which indicate a feeble heart and a relaxed arterial tension.

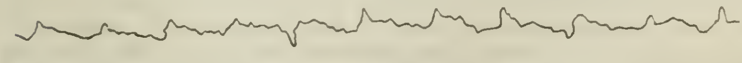
Tracing of sphygmogram of Barnes's pulse when he is quiet.

Fig. 1.



Tracing of sphygmogram of Barnes's pulse when exhausted.

Fig. 2.



A marked feature in B.'s case is the peculiar facial spasm which occurs some fifty or sixty times a day. During each one of these spasms the lower jaw is pulled down once or twice, and respiration and speech are arrested. Each spasm commences with pain over the hyperæsthetic space in front.

Right arm.—The loss of power in the upper extremity of the right side is very evident. The patient states that immediately after being shot he dropped his gun, that he was not able to grasp it, and that for six months he could not elevate his right arm. He states "that the shoulder was paralyzed."

At present he cannot raise the arm above the level of the shoulder, and the grasp of the right hand is very feeble, contrasting strongly with that of the left hand, which is remarkably vigorous for one of his build.

The want of power in the right hand points to the probability of its having been due to a reflex paralysis originating in shock at the time he was wounded. Indeed there seems to have been sudden loss of power at the moment, and no amount of disuse possible to a man who has to do even light work will account for the vast disproportion between the strength of the two forearms.

I ought to add that we found it impossible to make as perfect a report of this case as the interest demands, because of the terrible exhaustion and nervousness which are brought on by percussion or even by pressure of an ear upon the sensitive regions of the right chest.

Dr. JOHN H. BRINTON counted the pulse and respiration in the presence of the Fellows, and found them respectively 96 and 112 in the minute. He had never before met with such increase in respiration without corresponding increase in the pulse.

Dr. JOHN ASHHURST, JR., thought he observed that when the patient spoke the rapid diaphragmatic action subsided. He seemed able to hold his breath for some time when the motor force was directed to the muscles of phonation.

Dr. BRINTON stated that the patient always held his breath for 10 or 12 seconds during the facial spasms.

Dr. S. WEIR MITCHELL said that the first point of interest in this case was the great weakness of the right arm. Barnes had at first attempted to carry his musket off the field, but was obliged to drop it repeatedly, and finally to leave it. After that period there was a good deal of disuse of the arm. No remarkable difference can be observed in the muscular development of the two arms, not enough to account for the difference in power. The grasp of the left hand is vigorous, while that of the right is singularly feeble. Mere disuse would not explain the vast disproportion. He was therefore inclined to believe, although he had reached the conclusion somewhat doubtfully, that the impairment of power was a reflex effect. As to the cause of the rapid breathing, he was somewhat undecided. There was no considerable loss of lung tissue to render a great degree of supplementary action necessary. The explanation, then, must be, that some unusual impression from without was conveyed to the nerve-centres, so giving rise to the frequent respiration, or else that the nerve-centres themselves were so affected as to be over-susceptible, and respond inordinately to the ordinary influences. It might be that the retained ball was acting upon healthy nerve-centres, or, more probably, that the morbidly excitable nerve-centres made excessive response to the normal respiratory excitants. Nor would this seem very extraordinary if the Fellows would recall the usual phenomena of shock after accidents, where sometimes the heart is enfeebled, and sometimes the whole muscular system, as where single limbs become absolutely palsied. It was therefore not impossible that the shock of a grave wound of the respiratory organs might occasion conditions of the related nerve-centres competent to occasion such a rate of breathing as we see in the present case.

Dr. J. CHESTON MORRIS asked if the electro-muscular excitability had been tested.

Dr. S. WEIR MITCHELL replied that it had not been possible to do so. Even auscultation and percussion of the heart and lungs produced excessive agitation and fatigue. On one occasion the patient lay for more than half an hour in a state of alarming prostration, consequent upon a very gentle examination. He hoped, however, to investigate this portion of the case more fully at another time.

Dr. WM. PEPPER asked if it were possible to form any other conclusion as to the course of the ball. It entered so far from the vertebral column that, had it passed downward, forward, and to the right, it would have missed the branches of the sympathetic nerve, and any large branch of the pneumogastric. Could it have passed inward and downward?

Dr. JOHN H. BRINTON replied that he had no means of determining the question except by drawing an imaginary line from the point of entrance to the area of extreme tenderness. Barnes had felt the stroke behind, and then a sensation of tearing at the spot in front. As he was shot by a sharpshooter from a tree, the ball had certainly ranged downward, possibly a little inward. Extreme dyspnœa being produced by mere inspection, it had been impossible to make any accurate physical examination.

Dr. WILLIAM PEPPER called attention to the very peculiar muscular spasms which the patient presented, and which, it seemed to him, were strongly in favour of Dr. Mitchell's view that the dyspnœa was due to reflex irritation of the pneumogastric nerves. Thus these spasms affected the muscles of the face and of the larynx. The patient further states that he occasionally is seized, while eating, with spasm of the pharyngeal muscles, or of the upper part of the œsophagus, preventing deglutition and causing regurgitation of the food. He also suffers from spasmodic aphonia, so that at times he is obliged to wait a full minute before being able to begin a sentence. It would thus seem that branches not only of the pneumogastric (as the recurrent laryngeal), but also of the facial, the hypoglossal, and the spinal accessory nerves were affected in the production of these muscular spasms. When it is borne in mind that Mr. Lockhart Clarke has demonstrated a close anatomical relation between the nuclei of origin of these nerves in the medulla oblongata, it may readily be understood that a peripheral irritation of branches of the pneumogastric nerves (as of their pulmonary branches) might excite a reflex irritation of the other nerves mentioned, and thus explain the occurrence of such spasms as were presented by the patient.

Dr. H. C. WOOD referred to the facial spasm being preceded by pain in the tender portion of the chest, and suggested a resemblance of this phenomenon to the epileptic aura.

Dr. CASPAR MORRIS said he had frequently observed, in long-continued cases of paralysis, that the act of gaping was accompanied by elevation of the arm. He thought the phenomenon might group itself with some of the symptoms in Barnes's case.

Dr. EDWARD HARTSHORNE remarked that the case in its general characters, reminded him of chorea, not only as it occurs in children, but also as seen after gunshot wounds.

Ulceration of the Skin as an Effect of the Use of the Bromides.—Dr. S. WEIR MITCHELL read the following paper: Every physician is aware that these salts may cause an eruption of small boils or pimples, which appear in successive crops—sometimes between the shoulders only, and sometimes there and on the face—more rarely they are generally disseminated.

In the cases of women this constitutes now and then a grave objection to the use of bromides, except in very serious disease, where the complexion is no longer an object of moment. In epilepsy I have now and then had to lessen my doses or lay the drug aside for a few days, on account of this evil; but save in the two instances about to be reported, the skin disease caused by bromides has never interfered practically with their continuous use.

A lad at the age of 10 began by having the lesser epilepsy, caused apparently by gastric disorder. These attacks gradually increased in number, and after two years he began to have convulsions, which now for several years retain the same character. At intervals of from nine to fifteen days he has, within forty-eight hours, two or three attacks. They resemble in all respects the typical fit, save that he does not bite his tongue. The lesser seizures are numerous, and the memory has been seriously impaired. Several years ago, I began to give this lad bromide of potassium, with an excellent effect in lessening the number and force of his fits, although it never fully held them in check.

After some nine months of its use, in twenty to thirty gr. doses, thrice a day, the boils, which had begun very early to plague him, became larger and more abundant, not only on the face but also on the scalp and extremities. His parents shared my desire to get out of the bromide its full value, and it was therefore agreed to push it. This resulted in certain of the boils enlarging and leaving a deep ulcer with everted edges and with a strong tendency to accumulate pus and epithelia in the shape of a conical cover causing it to resemble closely rupia. At one time he had nine such ulcers, none less than an inch in diameter and one or two of double this size, while the boils were numbless and painful. At this time I succeeded in persuading the patient and his near relatives that the medicine was the sole cause of this annoyance, and it was therefore lessened; but not until he got down to thirty grains a day did the ulcers begin to heal. Some months later, he being in the country, away from me, they were tempted to give the bromides once more in full doses. Precisely the same result occurred; but when he was brought in this pitiable state to me, I endeavoured to discover how the bromides could still be given without causing boils, for on this latter occasion the ulcers formed within two months and under very moderate doses. It was clear enough that the boils were only the small beginnings of a mischief which ended in the ulcers, so that to save from one would enable us to escape the other, and in this point of view the appearance and enlarging of the boils became a sufficient and early test.

I should add that bromides were always of great use in this case until under the influence of multiplying ulcers, the general health began to fail, and the fits to increase.

I began by making the functions of the skin more active with warm baths, flesh brushes, and other means, with always great attention to the bowels, and finally with various diuretics, both vegetable and mineral. Then I tried tonics, such as bark and iron. The other means had merely failed, but the iron, especially its most efficient form, the tincture of the chloride, enormously increased the attacks, as it is very prone to do. Next I employed manganese, zinc, silver, bismuth, all alike in vain; nor was any local plan of treatment more fortunate. Finally I rang all the changes upon the combinations of bromine, using them before or with or after meals. The bromides of potassium, sodium, and ammonium all alike occasioned these hideous boils and ulcers. All of the three salts acted favourably upon the fits, the ammonia salt requiring much larger doses, and being apparently not quite so sure in its effects. I then began to employ, with but faint hope of success, combinations which are not in common use, such as bromide of calcium, of magnesium, and even bromine itself in solution. None of the latter agents surely lessened the number or force of the fits, so that there was no reason to continue them long enough to tell whether or not they would increase or keep open the ulcers. So far as I can now recall, the bromide of lithium was the last used of the bromides. It caused new or increased the old ulcers, and had the usual happy influence upon the fits of the other bromides of fixed alkalies.

Until lately, I supposed that the above case, of which I have related enough to serve my purpose, stood alone as to the possible extent of the influence exerted by bromides upon the skin. Two months ago, however, I saw a young man from Northwestern Pennsylvania, who, on account of an epilepsy of ten years' duration, took, without advice of any physician, a quack preparation which I have found to contain about 25 grains of bromide of potassium to each dose. Finding that he obtained but slight relief and despite increasing boils, of the origin of which he knew nothing, he doubled the dose and took for at least a month, 50 grains thrice a day. When I saw him, he had above the right knee an ulcer two inches wide, and through neglect, covered with a conical cap of dried pus, so as to look like rupia. On the same leg were two ulcers, and on the left arm and back of neck were three. It may seem incredible that the only physician in his neighbourhood, to whom he showed these ulcers, and related his case and treatment, should have considered his case as one of syphilis. Upon withdrawing the bromide, these ulcers healed with the most astonishing rapidity.

Excepting these two cases, I have seen no instance of bromic ulcers, although, like others, I have met with many cases of such eruptions of small boils, as to make it advisable to lessen or stop the offending drug. On the other hand, in some epileptics the largest doses of bromides cause only slight acneous eruption between the shoulders, while in a very few no therapeutic device will lessen or prevent the most enormous outbreak of boils. So far, no device has aided me to solve this problem. In France one observer at least has contended that the sodium bromide is less productive of boils than the others. I am positive, however, that this is not the case, and that we have no means as yet of giving bromides with a certainty of not causing eruptions.

Dr JOHN ASHHURST, JR., said that the most obstinate ulceration which he had ever observed after any hypodermic injection, followed the subcutaneous use of fifteen grains of bromide of potassium. The syringe was entirely clean, and there was, therefore, every reason to attribute the ulceration to the irritation caused by the substance employed. The remedy had been given in this way twice, because of tetanic spasm which prevented deglutition. The ulcer persisted until death occurred, three weeks subsequently. (See *Proceedings Pathological Society*, in *American Journal of Medical Sciences*, July, 1866, pp. 130–133.)

Dr. S. W. MITCHELL had not used more than five or ten grains of bromide of potassium hypodermically. He had given bromide of lithium in the same way, and had seen some threatenings of inflammation, but only once a small abscess.

Dr. WILLIAM PEPPER suggested that individual differences in the irritability of the skin might determine the production or non-production of the cutaneous boils and ulcers. In the Epileptic Ward of the Insane Department of the Philadelphia Hospital, containing nearly two hundred patients, bromide of potassium was used to a very large extent, and the amounts taken at times during the most severe paroxysms were very great; yet the eruptions produced were usually too trifling to attract notice. Spontaneous complaints from the patients were very rare, and examination discovered acne and boils in but a moderate proportion of cases.

Dr. JAMES DARRACH had had under care a child which suffered from attacks of *petit mal* during teething. Two or three attacks occurred each week. They were fainting fits, not convulsions, and were excited partially by resistance to its will, as by putting it into the bath, or by taking things from him; but also occurred spontaneously. He gave bromide of potassium in doses of five to ten grains three to four times a day, and continued the remedy for eighteen months or two years. No eruption was produced; but fearing an injurious influence upon the general nutrition, he was careful to suspend the medicine occasionally for short periods, in order that the secerning organs might clear the system. The child had been entirely well for a year after the completion of teething, but since the commencement of the warm weather, had suffered two or three times with paroxysms of irritable temper. Sea-shore life had an excellent effect upon the little patient. He inquired whether the emunctories were active in the cases of ulceration reported by Dr. Mitchell. Also whether epileptics could take large doses of the bromides with impunity.

Dr. MITCHELL, replying to Dr. Darrach's question, "Were the emunctories in good condition?" said he knew nothing to the contrary. He thought that in private practice careful examination would seldom fail to find an eruption of acne between the shoulders, after the administration of the bromides had been continued for two or three months.

Dr. J. CHESTON MORRIS thought that the facts stated by Dr. Pepper might be harmonized with the existence of the eruption, as observed by Dr. Mitchell; moderate doses were thrown off by the kidneys and skin, irritating the latter structure, while the large amounts probably passed away through the bowels. He had seen an eruption from the bromides most frequently in those who bathed often, and whose skin was thus overstimulated and particularly liable to inflammation. He thought the true mode of relief was to increase the urinary secretion and relieve the skin.

Dr. WM. PEPPER observed that this explanation would apply only to the exceptional cases in the Philadelphia Hospital, where unusual amounts of the drug had been administered for short periods, and could not account for the absence of the eruption in the larger number who took it in ordinary doses for long periods.

On the Use of Bromide of Lithium.—By S. WEIR MITCHELL, M. D.

In the experiments upon various bromides to ascertain whether or not any of them were free from the evil of causing destructive skin ulcers, I was struck with the fact that the bromide of lithium seemed to cause a more rapid and intense sleeplessness than the other bromides.

This observation induced me to use it since then in certain obstinate cases, and to test it comparatively with the bromides of sodium, potassium, and ammonium. These results I propose to call to the attention of the College. Up to the time I mention, bromide of lithium was not used in medicine, so far as I am aware, but was extensively employed in certain photographic processes, for which it was manufactured perfectly pure.

This salt is very deliquescent, and were on this account better given in solution. As I shall have to point out it has seemed to me to act more rapidly than the other bromides, and this may be due to its easy solubility, which is ordinarily associated with a high osmotic equivalent. There has been some tendency of late to prefer the bromide of sodium to that of potassium as a therapeutic agent, because of its possessing a larger amount of bromine. If any reliance is to be placed on this test we should acquire a new reason for placing bromide of lithium above both of them. The percentage is nearly as follows:—

In bromide of potassium there is about 66 per cent. of bromine; in bromide of sodium 78 per cent., and in bromide of lithium nearly 92 per cent.

I think the taste of the new salt rather less unpleasant than that of bromide of potassium, and rather more disagreeable than that of the sodium or ammonium salt.

The price of the lithium salt is at least four times that of the other bromides, but I am told that upon its larger use this difficulty will disappear.

My reasons, in brief, for bringing this new agent to the notice of the Fellows, are these:—

That it has seemed to me to act efficiently in some cases of epilepsy where bromide of potassium has failed.

That it is thus efficient in lesser doses than the salt just named.

That as an hypnotic, it is superior to the potassium salt and to the other bromides. To support these propositions, I select the following cases from my note-book.

J. T., æt. 14, had, at twelve years of age, attacks of *petit mal*, which in two years became interspersed with convulsions, sometimes at night, sometimes in the day, but usually violent. The case originated in gastric disorder, which has been very unmanageable. A year ago, he began to take bromide of potassium in doses rising from ten to thirty grains thrice a day with various treatment, addressed to the stomachal conditions. At first the bromide controlled the fits, but gradually they returned despite its increase to two drachms daily, while at the same time he suffered from insomnia. In this condition he returned to this city, where I again tried the bromide which had been abandoned in despair, he having a fit every three or four days and numerous little attacks. Here, as at his own home, bromide lessened the number of attacks one-half, but no more, and the insomnia remained scarcely altered.

After trying valerianate of quinia and belladonna, I resorted to bromide of lithium, of which he took, at first ten and finally twenty grains *ter in die* with the effect of improving his condition, at once giving him sound sleep, and lessening both forms of fit, so that he had light convulsions only once in two weeks, and the *petit mal* not more than once in two days. Owing to the cost of the lithia salt, I returned, after two months, to the bromide of potassium, with at that time a result quite as good as that given by the bromide of lithium.

About eleven weeks ago, I determined to treat the gastric disorder by milk cure. Under this combination, his attacks have ceased, there having been none in eleven weeks: the stomach being comfortable, the *petit mal* altogether absent, and the memory, previously much impaired, having become rapidly better; so that the lad writes: "Life seems to me now quite a different thing from what it used to be." Of course I do not look upon him as cured, but I am glad to quote his case as one of the instances, which I hope to lay fully before the Fellows, of success attained in epilepsy by this combination of milk cure and bromides, where the latter alone had failed.

Eliz. C., æt. 19. Has had daily an epileptic fit on rising in the morning, or more rarely after breakfast. Anxious to compare the two salts, I gave her first bromide of potassium in doses of 25 grains thrice a day. This amount controlled the fits, which never returned unless she lessened the dose to fifteen grains, when she would have an occasional fit; in some weeks one, in others two. Ten grains of bromide of lithium thrice a day absolutely controlled the attacks, so that in two months there were none. I could not trace in this case any sufficient cause of disease.

It is hardly necessary to take up the time of the College with the familiar details of epileptic cases. I have at present under my care a case of *petit mal* without convulsions, recurring twenty or more times a day. The patient is positive that eight grains of bromide of lithium exercises a better influence than triple that amount of the potassium bromide.

A brother of this patient has had for years fits of epilepsy, which occur about once in ten days; he has a gastric aura, in the shape of slight nausea, which in most instances precedes the fit by nearly an hour. I used to order for this a mustard emetic, which sometimes broke the attack. He himself discovered, however, that twenty grains of bromide of lithium taken at once, in addition to his regular use of this salt, or of bromide of potassium, would at least two out of three times cut short the trouble. Now this result must have been due to some more sure or more speedy action of this salt, because the other bromides in like doses failed to so affect him. He is now doing remarkably well under the added use of milk cure.

I have now under my care Mrs. P., the wife of a physician. She has had for a year ringing in the left ear—some feebleness in the right leg; rarely a tendency to aphasia, and more or less insomnia; with noises and pain referred to the left temporal region. Bromide of potassium has proved of much service, but as it began lately to lose its power, I substituted, without her knowledge, ten grain doses of the lithia salt for twenty grain doses of the bromide of potassium. She remarked next day that the old medicine was doing her good again, and in fact the improvement in sleeping and in other respects was most distinct.

Miss V., an intelligent woman, after using the bromide of potassium for continued headache and insomnia, was placed on fifteen grain doses of the lithium salt. She is of opinion that the relief which follows always with her each dose of either salt, is much more rapid when bromide of lithium has been used, and that she sleeps sounder under its use.

Ch. P., teacher, married, æt. 44; a victim of over-work, and various forms of trouble. Is incapable of any prolonged mental exertion, which flushes his face, causes intense pain between the shoulders, and insomnia. Has also frequent nocturnal emissions. Finding that the bromide of potassium, in twenty grain doses, thrice daily, was of great service, I requested him to use in place of it the lithium salt, and to observe the comparative results. He thinks the latter more unpleasant to take, but is of opinion that its power to bring sleep is greater, and indeed complains that it makes him feel too drowsy during the day.

It is needless to add to this evidence—and whether I am right or wrong in concluding that in bromide of lithium we have an addition of value to our list of bromides only larger future evidence can decide; I have long hesitated to lay the case before my medical brethren, and now trust that what I have here said may at least be thought sufficient to justify me in publishing my belief.

May 18. *Dislocations in Children.*—Dr. JOHN ASHHURST, Jr., reported three cases of dislocation, which he thought were somewhat interesting as occurring in children, and as illustrating the comparative influence of the muscular and ligamentous structures in resisting efforts at reduction.

CASE I. A boy, aged 10 years, admitted to the Episcopal Hospital Feb. 6, 1866, with luxation of the head of the right femur downward and forward—the injury having been produced several days before by violence exerted while the thighs were widely abducted. The dislocation was reduced by manipulation, without anæsthesia, and the boy discharged, cured, nine days later.

In March, 1870, Dr. A. had examined the limb again—the boy exhibited no evidence of his former injury, but felt slight pain in the knee when fatigued by unusual exertion.

CASE II. A boy, aged 8 years, admitted to the Episcopal Hospital February 19th, 1870, with luxation of the head of the left femur upward and backward, produced one hour before by a blow upon the hip from a falling piece of timber. The dislocation was readily reduced by manipulation without ether, and the patient discharged, cured, in ten days.

CASE III. On March 27, 1870, a female child, 2½ years old, while being swung around by the arm, in play, by an older person, received a sub-coracoid luxation of the head of the left humerus. The dislocation, as in the other cases, was readily reduced without ether.

Dr. Ashhurst referred to the old dispute as to whether resistance to reduction, in cases of luxation, came from muscles or ligaments, and used the cases above recorded as illustrations of the necessity of recognizing both elements: the muscular resistance in children was slight, and in adults could be annulled by employing anæsthetics, and there then remained only the ligamentous resistance which had to be considered in studying the mechanism of any mode of reduction.

Dr. PACKARD had met with a subclavicular dislocation of the head of the humerus twice in the same child. The first injury occurred at the age of two years, the second a little more than three months later; and both were due to lifting the patient by the arm. No anæsthetic was used in the reduction, which was easy. He thought the luxation was facilitated by the imperfect development of the bony processes, especially the coracoid.

ART. XVIII.—*Summary of the Proceedings of the Pathological Society of Philadelphia.*

1870. *March* 10. *Cancer of Testicle.*—Dr. ELLIOTT RICHARDSON presented the specimen, with the following history :—

W. S., æt. 40, married, farm labourer, native of Ireland, was admitted to the Pennsylvania Hospital Feb. 12th, 1870, with an enlargement of the left testicle, and of lymphatic glands in the groin of that side. Tumour was perfectly opaque, not painful to the touch, but at intervals he experienced a dull heavy pain. Skin of the scrotum distended, but not otherwise altered. No other tumours or enlarged glands than those mentioned were observed. According to the man's own statement he has been in this country seventeen years, and up to about the first of last May was in perfect health. At that time he first noticed an enlargement of the testicle, which enlargement increased rapidly for about a month, and afterwards slowly to the date of operation. He can give no account of cancerous or tuberculous disease having existed in his family. The testicle was removed by Dr. Agnew on Feb. 19, 1870, and with it the enlarged inguinal glands, two of which were completely broken down, forming abscesses.

Referred to Committee on Morbid Growths, which subsequently reported that the testicle was enormously enlarged, measuring 4½ inches long by 3½ inches wide. Its external surface presented numerous shaggy flocculi. Upon section, the tunica vaginalis was found greatly thickened. The cut surface of the testis presented an encephaloid appearance, consisting of patches of pure white interspersed with others of grayish, or pink colour, and separated by thin trabeculæ of fibrous tissue.

Microscopic examination of the cells from the whitish patches showed multitudes of small cells ($\frac{1}{1000}$ in. to $\frac{1}{1500}$ in. in their long diameter), oval, slightly angular, or even caudate in shape. These cells were in a state of marked fatty degeneration, so that in most instances the nuclei were concealed by the fat globules, while in other cells a single round nucleus, very large in proportion to the containing cell, was visible. In addition, much free fat and quite numerous very large granule cells and numerous plates of cholesterin were seen. In scrapings from the less degenerated, more reddish portions, the cells contained less fat and presented one, two, or, in some cases, three nuclei. They were of the same shape as those before described. In all parts of the gland the stroma was very delicate and scanty.

Caries of Vertebræ; Abscess opening into Lung.—Dr. HARLAN presented a specimen showing the sequel of a case he had reported to the Society a few months ago. The subject of it was a patient at the Children's Hospital, with curvature of the spine, who expectorated several small pieces of bone, one of which I showed, with a brief account of the case. The patient presented all the rational symptoms of phthisis, but, as the physical signs were wanting, I expressed the opinion that the harassing cough and profuse expectoration were due to an abscess connected with the diseased vertebræ, and opening into the lung. She died on Sunday last, and a *post-mortem* made the next day showed extensive old pleuritic adhesions on both sides, carious and calcareous bronchial glands, pus in the bronchial tubes, and slight congestion of the lungs, but not a trace of tubercular deposit. The lower part of the right lung was firmly adherent to the spine, and on tearing it away, an abscess the size of a small hen's egg was seen, formed partly in the lung and partly by a deep excavation in the vertebral column.

A number of small fragments of cancellated bone were found loose in the cavity of the abscess, and two such pieces may be seen imbedded in the consolidated lung tissue in the neighbourhood of its walls. I have removed the dorsal vertebræ, nearly all of which, I think, when cleaned, will be found to be more or less diseased. The body of the vertebra at the seat of the abscess (about the seventh dorsal) is entirely removed, and the spine at this point is bent at a right angle. There was never any paralysis.

March 24. *Excision of Knee-Joint.*—Dr. ASHHURST exhibited the specimens (condyles of femur, head of tibia, and patella) from a case of excision of the knee-joint. The patient, a boy of 10, had received an injury four years ago, for the results of which he had been successively treated in several hospitals. The knee was the seat of great deformity, contracted to an angle of about 120°, the tibia being dislocated backwards and upwards, and the patella fixed upon the external condyle; the joint was partially anchylosed, somewhat tender, and frequently painful. Excision was performed yesterday by a single curved incision over the joint, the articular surfaces being removed with Butcher's saw. The soft tissues of the joint were deeply congested, the cartilage ulcerated, and the bone partially eroded.[1]

Supposed Parasitic Body.—Dr. W. H. PANCOAST presented a specimen sent to him from Bangor, Maine, of which the following is the history :—

M. W., a woman aged 23 years, had a dry cough (occasionally paroxysmal), for a year or two. At the end of this time she threw up this cylindrical body, nearly ¼ inch in diameter, and one inch long, which had, at first, a cartilaginous feel, and was of a bright pink colour. After this the cough immediately disappeared.

Referred to the Committee on Morbid Growths, which subsequently reported as follows :—

The object presented was about 1¼ inch long, wider at one end, which terminated abruptly and presented a concave surface, while it tapered gradually towards the other, which terminated in a blunt extremity. The larger end was about 2 lines wide, the smaller end about 1 line wide. The intervening shaft was uniformly about 1 line wide. The body was flattened, presented slight serrations on the edges as though from irregular shrinking from the action of the liquid in which it had been preserved. Its colour was of a dark brown approaching black.

On transverse section it presented a cellular structure, the cells appearing quite large, arranged circularly, with multiple nuclear-like bodies in their interior. There were also large opaque masses, apparently cells filled with pigment. On longitudinal section the cells were seen arranged with their long axes (which were from three to six times greater than their transverse diameters) parallel to each other. Otherwise they presented the same appearances as on transverse section. The only animal tissue to which the appearances presented any resemblance is cartilage; but owing to the arrangement of the cells, it appeared to be of vegetable origin. The specimen was also, at the request of the committee, examined by Dr. H. C. Wood, Jr., who confirmed the view taken by them, and regarded the specimen as the stem of the frond of one of the fucoid algæ.

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[1] The greater part of the wound healed by adhesion, and the patient is now (Aug. 18, 1870) quite well, with his leg firmly united at a slight angle, and able to walk without crutch, cane, or other assistance, and with no pain. The shortening is two and three-quarter inches, part of which, however, is due to a fracture of the thigh which occurred some years before the operation.

Abscess of the Brain; Ulcerative Endocarditis; Capillary Embolism of Kidneys and Spleen; Cerebral Hemorrhage. Autopsy. Dr. WM. PEPPER presented the specimens and gave the following history:—

A. B., æt. 9, a vigorous, well-grown boy, struck his head violently in the neighbourhood of the right frontal protuberance. The child was stunned for a time, but did not actually lose consciousness; he also vomited several times. There was a good deal of swelling and discoloration at the seat of injury, but this soon subsided, and in a few days the lad seemed as well as usual. He continued well for four months, during which time the only unusual feature about him observed by his family was occasional intense congestion of the face. This was developed by anger or exertion, and he was on one occasion observed to remain for some time with his head thrust out of a window. At the end of the four months he was attacked with obscure febrile symptoms, with heat of skin and acceleration of pulse. There were also moderately severe articular pains confined to joints of left extremities, and delirium, which was at first mild, but became more active. It was observed that he moved the left side of his body less readily than the right, but this was afterwards sufficiently accounted for by the articular pains. There was slight puffiness of the joints. A soft systolic mitral murmur was detected, and he evinced some uneasiness when the head was placed on præcordia. The febrile movement was somewhat irregular, but presented no marked remission. The urine was abundant, but could not be collected for more careful examination, as it was passed involuntarily. The surface was pale, and no eruption appeared. After a few days the condition of the mind changed to a state of more or less profound coma, which persisted till the day before death, when an abrupt remission in the fever occurred, attended by a free sweat, and soon followed by a return of intelligence, so that he recognized those about him. The following day he relapsed into a state of coma, and died about a week from appearance of the acute symptoms.

Autopsy twenty-four hours after death:—Head: Calvaria healthy, without any trace of previous fracture. There was a firm clot in one of the meningeal vessels, about under the seat of the former injury, and the meninges at this point were thickened. In cutting into the right hemisphere a cavity as large as a pigeon's egg was found in the anterior lobe, occupying the white substance between the antero-superior part of the corpus striatum and the cortical substance. Anteriorly, the wall of the cavity was formed only by a thin layer of cortical substance. The cavity was filled with a dark and chiefly fluid clot of blood. The walls presented no deposit of yellow pigment, but were discoloured, and here and there exhibited traces of chronic inflammatory action. The impression gained by a careful examination of the lesion was that there probably had been a small abscess in the substance of the brain at that point, and that a sudden hemorrhage had occurred into its cavity, enlarging it by laceration of surrounding tissue. The rest of the brain was entirely healthy.

Thorax: The *lungs* were healthy. The *heart* was of about the normal size, but on opening the left ventricle, the walls of this cavity presented a moderate degree of hypertrophy. The muscular tissue was firm, and, on microscopic examination, was found entirely healthy. There were evidences of old endocarditis in the shape of fibroid change in the tips of the papillary muscles; shortening, thickening, and some little coalescence of the chordæ tendineæ, and thickening of the free edge of the mitral valve. This thickening gave rise to a narrow ridge skirting the edge of the leaflets, but not surrounded by any vegetation. Microscopic examination of the structure of this thickened ridge showed it to be composed of quite dense fibrous tissue, with numerous small oval nuclei imbedded. There was also, however, on the posterior leaflet of the mitral valve, about $\frac{1}{3}$ in. from its free edge, a patch of ulceration ($\frac{1}{2}$ in. by $\frac{1}{6}$ in. in size), which had led to a perforation of the valve ($\frac{1}{3}$ in. by $\frac{1}{8}$ in. in size). The ulcerative disease had extended from the endocardium investing the valve to that covering the posterior wall of the ventricle at the line of the insertion of the affected leaflets, and here also there was destructive ulceration of the endocardium ($\frac{1}{3}$ in. in diameter), and superficial disintegration of the subjacent tissue. The aortic valves and those of the right side of the heart were healthy. The pericardium was healthy.

Abdomen: Liver congested but healthy. The *spleen* $\frac{1}{2}$ too large, presented at its inferior extremity a small collection ($\frac{1}{4}$ in. in diameter) of puruloid matter, evidently resulting from the advanced softening of an embolic patch. The *kidneys* were of normal size; their capsule thin and readily removed. Their external surface presented numerous minute elevations, each of which had a yellowish-white centre, surrounded by a narrow zone of deep congestion. On making a section of the organs their tissue was found to be quite thickly studded with similar minute patches, each one presenting the same pale, yellowish-white centre and surrounding zone of deep congestion. Softening had not yet appeared to any appreciable extent in the central portion of these patches.

Remarks.—The opportunity of describing and presenting these specimens is due to the courtesy of Prof. F. G. Smith, in whose practice the case occurred, and from whom the above clinical notes of the case were obtained. The obscurity which surrounded the diagnosis is of course manifest. The entire disappearance of the symptoms caused by the blow seemed at first to withdraw attention from the brain. It is, however, interesting to note that during the four months which intervened between the injury and the final illness, the child presented frequent intense congestion of the head and face. I have on one other occasion observed this same phenomenon in a case of latent cerebral abscess. In the latter part of the case now under discussion, the supervention of coma, and the paresis of the left side, taken in conjunction with the previous injury, led to the diagnosis of disease in the right hemisphere of the brain. In carefully examining the lesion of the brain it will be seen that it presented evidences of both old disease and of recent hemorrhage. There can, indeed, I think, be little doubt that the clot occupying the cavity in the anterior lobe was quite recent, and possibly had formed at the time when the comatose symptoms appeared. It appears probable, further, that the antecedent disease was a small abscess, or circumscribed patch of softening, owing to the absence of any deposit of yellow pigment on the walls of the cavity.

The connection which this cerebral lesion had with the acute attack of ulcerative endocarditis, if, indeed, any such relation existed, is most obscure; and it appears more likely that the latter affection occurred by coincidence, as an idiopathic disease. The lesions in the left ventricle, above described (hypertrophy of its walls, fibroid thickening of the free edge of the mitral valve), show that, as usual, the attack of ulcerative endocarditis had been preceded by chronic disease of the heart. The seat of the ulceration and the characters of the lesion were such as are most generally found; the chief peculiarity about the case being the very unusual youth of the patient, since ulcerative endocarditis is far more frequent in adult life. It is, perhaps, impossible to obtain a clear idea of the symptoms due to the endocardial lesion in the present case, beyond the mere fact that there was a mitral murmur and some præcordial tenderness, since these symptoms were greatly masked and complicated by those of the cerebral disease.

In regard to the immediate cause of the large cerebral hemorrhage which occurred shortly before death, it would appear to be due to the disturbance of the cerebral circulation, caused by the cardiac disease, favoured by the previous disintegration of brain tissue at that point.

It is interesting to observe, further, that despite the very numerous minute emboli lodged in the kidneys, the urine remained free and clear throughout the attack. The last point of interest to which I would call attention in the history of this case is the sudden and marked return of consciousness within twenty-four hours of death, a phenomenon which appears explicable only on the supposition of a sudden diminution of the venous congestion of the nerve centres.

Dr. ASHHURST remarked that the absence of pulmonary lesion showed that the condition of the kidneys, etc., was directly connected with the state of the heart, and only secondarily dependent upon that of the brain. The sequence of events appeared to be, *first*, a traumatic lesion ("concussion") of the brain, followed by degeneration and softening of the cerebral structure; *secondly*, ulcerative endocarditis, which was an occasional strange rare sequence of head injuries, being usually associated with other pyæmic phenomena; *thirdly*, embolism of various viscera as a direct result of the condition of the heart; and *fourthly*, hemorrhage into the previously softened brain structure. The cerebral hemorrhage, therefore, though the immediate cause of death, was merely a coincident occurrence, not necessarily connected with the lesions found in other parts of the body.

Dr. W. PEPPER said, in answer to a question of the President, that he presumed the hemorrhage was in some way connected with a diseased condition of the vessels in the walls of the abscess.

It was perhaps quite possible that minute emboli had entered some of the cerebral vessels, but it could scarcely be supposed that the hemorrhage was in any wise due to collateral pressure following embolism. It would require a combination of coincidences scarcely conceivable if but a single embolus should have led to hemorrhage, and that one in this cavity.

Kidney referred to Committee on Morbid Growths, which subsequently presented the following report:—

Section of kidney structure in interval of embolic patches presented perfectly normal appearances:—

On cutting thin sections through one of the embolic patches, a small arterial vessel was seen leading to it, with its calibre entirely filled with opaque granular matter, so as to entirely obscure the transverse nuclei. The zone of congestion surrounding the central yellowish-white spots was highly opaque, owing to presence of granular matter and effused blood. The examination of the central spot itself showed it to be composed of renal cells closely aggregated, and in a state merely of granular change. No extensive softening had occurred, and no pus cells were seen.

Constrictions of Large Intestine from Peritoneal Adhesions.—Pyelitis and Cystitis.—Dr. **DE F. WILLARD** presented the specimens and said:—

They were taken from a cadaver in the anatomical rooms of the University of Pennsylvania, and are therefore utterly devoid of clinical history. Great omentum firmly adherent to whole of ascending colon and mesocolon, to gall-bladder, and to gastro-hepatic omentum. Abdominal contents otherwise healthy until reached commencement of descending colon, but from this point to anus were found numerous firm, white, inelastic bands constricting the intestine (which was itself otherwise healthy) at numerous points. One at the upper portion of the rectum compressed the bowel for about 4 inches, the bands arising from one side of mesorectum and passing over the intestine to be inserted into the other layer, thus encircling it like the clamps, which by their gradual contraction, had diminished the calibre to ¼ its former diameter. In left inguinal fossa lay from 2 to 2½ feet of large intestine, dragged down by strong bands arising from sigmoid mesocolon and lateral parietal layer of peritoneum, and the whole extent constricted at numerous points to the size of the little finger, but wherever was not thus compressed was of normal calibre and healthy. Vermiform appendix also drawn over to sigmoid flexure. Only small amount of hardened feces found in tract. Kidneys mottled, cortex thinned, pelvis dilated, and partially filled with yellowish-brown pus. Ureters dilated and filled with dark brown material, a mixture of pus, blood, and broken down epithelium, as determined by microscope. Bladder very small; walls thickened; filled with chocolate-coloured substance of consistence of thin jelly, which revealed blood, pus, and mucous corpuscles with much disintegrated granular material. Mucous membrane showed long-standing cystitis. Spleen at lower portion presented a peculiar, whitish, fibrous deposit almost resembling cartilage.

April 14. *Gunshot Wounds of Abdominal Viscera.*—Dr. C. T. **HUNTER** presented the specimen, with the following history:—

P. W., æt. 32. Admitted into Pennsylvania Hospital, at 9.30 P. M., 6th April, for two gunshot wounds received about an hour before. On examination, I found a small gunshot wound in the walls of chest, at a point one inch to the right of median line, and one inch and a half below level of right nipple. I traced the course of this ball by means of Nélaton's probe, for a distance of six inches, directly downward in thoracic and abdominal parietes, but was unable to find the ball. The second wound was situated in abdominal walls, three and a half inches to the left of umbilicus, and one and a half inches above. Very little blood had escaped from either of these wounds. The symptoms of nervous depression were decided, but notwithstanding, patient retained consciousness till within a few moments of his death. Shortly after receiving these wounds, he began vomiting blood, and, at occasional intervals, continued to do so till 2 o'clock the following morning. The vomiting seemed to yield slowly to small lumps of ice, which were greedily swallowed by the patient, as his thirst was intense. Patient complained almost constantly of severe pains in left hypochondrium, and beneath left scapula. His breathing was regular but rapid and unattended with pain; no cough nor expectoration, nor was there at any time pneumothorax. At about 10 o'clock A. M. on the following day, patient passed about a half a pint of high-coloured urine; shortly afterwards he had a motion of his bowels; this consisted of a mass of feces, with fully a pint of very dark blood. For six or eight hours before death, the abdomen became distended with flatus, giving rise to considerable dyspnœa. The treatment consisted of opium suppositories, morphia in large quantities by hypodermic injections, with hot fomentations of water and laudanum to abdomen. Died at 4.30 P. M. on the 7th.

Autopsy twenty hours after death.—Rigor mortis, very feebly marked, abdomen distended and tympanitic. The bullet which had produced the wound in the chest walls was found in the sheath of the rectus muscle, between the muscle and peritoneum, a little below and to the right of the umbilicus, showing that the course of this ball had been almost directly downwards for a distance of fully fourteen inches in the walls of the chest and abdomen, without wounding the pleura or peritoneum.

Peritoneal sac filled with gas, bloody fluid, and recent blood clots. The latter were confined to the upper portion of the abdomen. The course of the lower wound through the abdominal parietes was upwards and inwards.

From the appearance of the wounds in the abdominal viscera, it would seem that the bullet entered the stomach through the fundus, emerging through the lesser curvature, wounding the lesser omentum, entering the stomach again through the lesser curvature, and finally passing out through the walls at the pyloric extremity a little below the pyloric opening. The wounds in the superior curvature were filled with firm coagula, which, probably, had the effect of arresting the hemorrhage from the anastomosing branches of the pyloric and cardiac vessels. The transverse mesocolon was perforated, the coats of the corresponding portion of the colon were grazed, and finally, the upper end of the jejunum was wounded at two points by the ball. It appeared to have been prevented from passing out through the back by having come in contact with the left transverse process of the first lumbar vertebra, which destroyed its force and turned it up through the diaphragm into the thorax, where it was found lying loose. The base of the left lung was slightly contused. The other abdominal organs escaped injury.

Stricture of Colon, with Ulceration and Perforation.—Dr. E. RICHARDSON presented the specimen, and read the following history:—

C. R., æt. 43, married, a native of Germany, after severe and long-continued exposure during a journey from Boston to this city on foot, was attacked about two weeks previous to my seeing her with violent vomiting, which lasted up to the time of her death. She had at the same time frequent discharges from the bowels, which consisted frequently of blood, and which continued for about a week, when they ceased, and about the same time the vomited matter became largely fecal. When I saw her she was in a collapsed condition, with scarcely a perceptible pulse at the wrist, cool skin, and the tongue presenting the raw-beef appearance. The abdomen was very largely distended and tympanitic. She could retain neither food nor medicine in the stomach, as vomiting was almost incessant, and when small quantities of food and stimulus were thrown into the rectum, they were immediately expelled, and followed on one occasion by a little blood. She died about eighteen hours after I first saw her, April 12th, 1870.

Post-mortem made sixteen hours after death, by Dr. C. T. Hunter and myself, exhibited, in addition to the appearances presented by the colon, which was greatly diseased throughout, slight discoloration of the small intestine, more marked in the duodenum about the mouth of the ductus com. choledochus; the gall-bladder was found to contain several calculi. The liver, spleen, and kidneys were apparently healthy, except that the latter were congested.

The colon was found to be perforated in the lower part of the sigmoid flexure; immediately below this is an incomplete stricture which seems to be the limit of disease in this direction, the rectum being normal.

Single Unsymmetrical Kidney; filled with Pus, and forming Abdominal Tumour.—Dr. DE F. WILLARD presented the specimen, and read the following:—

Mrs. ——, æt. 58 years, mother of four children, had enjoyed fair degree of health during life, although for many years had suffered with pain in right side of abdomen, and was unable to lie on right side. Still she never suspected any kidney trouble, and was considered a healthy woman; this one kidney doing its extra work without great difficulty. Fifteen or twenty years since, she was treated by Prof. Meigs for disease of uterus or appendages, and soon after by Dr. Goddard; ovarian disease being apparently suspected.

The exact time of appearance of this "tumour" is somewhat uncertain, yet she has suffered with pain in that region for many years. It is only within the past few months that she has experienced any difficulty in micturition, and this was attributed to pressure of the mass upon the neck of bladder. She affirmed that she had passed pus from her urethra, but she was not sufficiently ill to require medical attendance during this time.

Came under Dr. Rodman's care but a few weeks before death, at which time she was suffering much pain in region of tumour. This "tumour" was situated in right anterior lumbar region, extending into umbilical, and to right inguinal, and could be easily felt through abdominal walls, as an oval mass, somewhat nodulated. Stomach excessively irritable, refusing to yield to all treatment. Was seen in consultation by Prof. D. Hayes Agnew, and also by Dr. W. L. Atlee. Examination of urine by Dr. Hall gave the following result: Colour, pale and opaque; specific gravity, 1.008; alkaline—albumen $\frac{1}{6}$; microscopically, epithelial scales; small renal casts; crystals of oxalate of lime and triple phosphate. Presence of pus or blood not mentioned. Sank rapidly and died April 1, 1870, from exhaustion and with *no* symptoms of uræmia.

Autopsy, forty hours after death, by Dr. Willard, in presence of Prof. Agnew and Drs. Rodman and Atlee. Considerable quantity of fat in abdominal walls.

Peritoneal effusion but slight. No signs of peritonitis; some slight adhesion of omentum to mass, hereafter described. Lying in right lumbar, inguinal and umbilical regions, was a large mass presenting somewhat the appearance of a distended stomach. Its shape was oval or globular, presenting no characteristic appearance of a kidney, since it was deeply enveloped in surrounding fat and connective tissue; while the portion resembling a stomach was found to be the immensely dilated pelvis. Upon removal, the kidney was found to be enormously hypertrophied, its pelvis greatly dilated, and the whole structure apparently one immense sac of pus. Length, 11 inches; width, with pelvis, 9 inches. Weight, 33 ounces. Ureter, not dilated. No calculi save few "gravel" stones, of size of mustard seeds. There were two arteries and three veins.

Upon section the kidney showed, in the aggregate, a largely increased amount of renal structure on account of hypertrophy, although in many places it was entirely destroyed, and nothing more than the mere capsule remained; while in at least eighteen different portions were depots or excavations in the renal structure, extending nearly to surface, which were all connected with pelvis and all filled with pus. Pelvis dilated so as easily to admit of one's fist.

The cortical portion compared with pyramidal was in deficiency, but was really thicker than the normal non-hypertrophied condition of cortex. The whole structure was dark, congested, and much softened, and was decidedly unhealthy in appearance to the naked eye.

The contents of the sac, upon examination, were found to consist largely of pus. Sp. gr. 1.022. Addition of liq. potass. or ammon. rendered more viscid. Boiling coagulated a portion. Under microscope; pus and blood corpuscles, many of them disintegrated, and a few phosphatic (triple) crystals.

Renal casts could not be found, though they were carefully and repeatedly searched for; yet this may have been due to their disintegration, since it was several days after death before the examination was made.

At the superior portion of kidney was a true cyst, of the size of an English walnut, entirely unconnected with the central cavity, filled with true cystic fluid, which was almost entirely coagulable by heat. This cyst was honeycombed by delicate white partitions or bands. Left kidney entirely absent, no trace of it being discoverable in any part of abdomen.

Supra-renal capsule, ureter and renal vessels of left side all absent. Right ureter entered bladder very obliquely, and finally opened near median line. Slight dimple in mucous membrane at point of normal entrance of left ureter.

Bladder empty and healthy. Uterus and both ovaries perfectly healthy, as were other abdominal organs.

Brain and thoracic viscera not examined.

Referred to Committee on Morbid Growths. A committee, consisting of Drs. De F. Willard, Packard, and T. B. Reed, were also appointed to collect the cases recorded of solitary kidney.

Report of Committee on Morbid Growths.—The tissue was highly granular, apparently in part at least, from prolonged maceration. There were no traces of malignant disease.

Report of Committee appointed to Collect Cases reported of Solitary Kidney.—We have examined nearly all the prominent American and English publications, and present as a result the following cases in addition to those alluded to by Mosler in *Archiv. d. Heilkunde*, 1863, p. 290.

1. Absence of left kidney and ureter; male adult.—Dr. Burwell of Buffalo, N.Y., Am. Med. Journ. April 1847. p. 523. (From Buffalo Med. Journ. Dec. 1846.)
2. Absence of left kidney and ureter.—Labe, Am. Med. Journ., April, 1855, p. 490. (From Compte Rendu de la Soc. de Biologie.)

3. Absence of left kidney and ureter; capsule present; in a male infant stillborn—right ureter opened on the left side of the bladder.—Förster, American Med. Journal, Oct. 1858. p. 511.

4. Absence of left kidney—capsule present; male adult.—Packard, American Med. Journal, April. 1862. p. 416.

5. Absence of left kidney and capsule; female æt. 53, uterus bifid.—Packard, American Med. Journal, July, 1863, p. 130.

6. Absence of left kidney—capsule present; male adult.—Thayer, Boston Medical and Surgical Journal, vol. iv. p. 11.

7. Absence of left kidney—capsule present.—S. Parkman, Dr. J. B. S. Jackson's Catalogue, p. 281.

8. Absence of right kidney—left renal capsule small, right much larger, in a monster.—Shattuck, Jackson's Catalogue, p. 239.

9. Absence of left kidney, 1 pelvis, 2 arteries, 3 ureters.—Hodge, Pennsylvania Hospital, Pathological Museum.

10. Left absent—right filled with calculus.—Dr. Hargadine, Phila. (Unpublished case.)

11. Absence of right. Supra-renal capsule and ureter present.—Ogle, Trans. Path. Soc. Lond., vol. iii. p. 382.

12. Absence of left kidney and ureter.—Murchison, Trans. Path. Soc., Lond., vol. x. p. 190.

13. Absence of left. Supra-renal capsule present, 3 arteries, 2 ureters.—Hillier, Trans. Path. Soc., Lond., vol. xv. p. 43.

14. Absence of left kidney and ureter.—Bruce, Trans. Path. Soc., Lond., vol. xvii. p. 175.

15. Absence of left; 2 ureters, opening separately, 3 arteries, 3 veins; right kidney weighed 93 oz.—Johnson, Trans. Path. Soc., Lond., vol. xix. p. 274.

16. Absence of left; 1 artery.—Lancet, 1863, ii. p. 622.

17. Absence of left.—Garrod, Lancet, 1863, ii. p. 724.

18. Absence of right; supra-renal capsule present; artery and veins absent.—Lancet, 1866, ii. p. 251.

19. Absence of left kidney and ureter.—Spooner, Lancet, 1868, p. 530.

20. Absence of right; supra-renal capsule absent. —Army Med. Museum, Fort Pitt, Chatham.

21. Absence of left, also of ureter.—Army Med. Museum, Fort Pitt, Chatham.

22. St. Thomas' Hospital, No. 1058.

23. St. Thomas' Hospital, No. 1059.

24. No. 2026,^{10} (Guy's Hosp. Museum,) supra-renal capsule present.—Wilks' Path. Anat., p. 355.

25. No. 2026,^{20} (Guy's Hosp. Museum.) implied that supra-renal capsule was not present.—Wilks' Path. Anat., p. 355.

Doubtful Cases—not definitely stated whether any other kidney present or not.

Case 1. Kidney situated on sacrum, 2 arteries, 1 vein.—Army Medical Museum, Fort Pitt, Chatham.

Case 2. Kidney situated on sacrum, 3 arteries, 3 veins.—Ibid.

Case 3. Kidney situated at bifurcation of aorta, 3 ureters uniting into one, 4 arteries.—Gay, London Pathological Society's Reports, vol. iii. p. 116.

Case 4. Kidney situated as above. 2 ureters uniting into one.—Thompson, London Pathological Society's Reports, vol. vi. p. 267.

Kidney had probably existed at some time.

Case 5. Right kidney mere rudiment, ureter turned upon itself not entering bladder—vessels wanting.—London Pathological Society's Reports, vol. i. p. 293.

Case 6. Left ureter atrophied and impervious, terminating in a cyst size of pigeon's egg, containing a dark syrupy fluid, and some cholesterine; no kidney structure; male adult.—New York Hospital Catalogue, No. 744, p. 295.

Case 7. Right kidney only sac. fœtus; other kidney malformed.—Hicks, London Pathological Society's Reports, vol. xvii. p. 177.

Case 8. Left atrophied to a drachm, but showed Malpighian bodies. Ureter impervious.—Jones, Lond. Path. Soc. Reports, vol. viii. p. 279.

The committee would therefore present these twenty-five undoubted cases in addition to the fourteen of Mosler, before alluded to, making in the aggregate thirty-nine cases collected by them. In addition to these there are eight cases in which a certain amount of doubt exists, and which have, therefore, been separately tabulated. Of the twenty-five undoubted cases, the left was absent in seventeen instances, the right in four; five cases are uncertain, while in Mosler's cases the deformity was found about equally upon the two sides.

The committee would especially call the attention of the members of the Society to the fact that the supra-renal capsule is found present at times, even when the kidney is entirely absent, thus showing a distinct character.

Horse-shoe kidneys not collected.

Dr. PACKARD presented for Dr. F. H. GETCHELL, a *fibroid tumour of the uterus*, which was partially removed by administration of ergot. The removal was completed by combined traction from below and pressure from above. The patient was 27 years old, was married twelve years, and had four children by a previous husband. Profuse hemorrhages occurred eighteen months ago.

May 12. *Testicle* (*left*) *from Mr. X.*, *æt.* 55. Dr. PACKARD presented the specimen and gave the following account:—

Mr. X. was first seen by me in 1867. He then had a hydrocele on the left side, about as large as an orange. He had had a blow on the part the year before. April 12, 1870, drew off about f℥iv of clear liquid.

May 10. Castration.—First evacuated the liquid from a sac, clear, no spermatozoids. The remaining contents of the left side of the scrotum were then removed in the usual way. Acupressure applied to the vessels of the cord. Four points of lead wire suture. Testicle atrophied. There had evidently been a hæmatocele. Was this a hydrocele of the cord, complicated with a hæmatocele in the tunica vaginalis?

May 26*th*. *Mammary Cancer.*—Dr. JOHN ASHHURST, Jr., exhibited a specimen of mammary cancer, removed by him, from a patient 54 years of age. The tumour, which occupied the left breast, had appeared five months previously, after the reception of a severe blow upon the part. It was very hard to the touch, the skin being adherent, dimpled, and slightly lardaceous; there was no adhesion to the pectoral muscle, and no enlargement of the neighbouring glands. The tumour was painful, and rapidly enlarging; there was occasionally a sanious discharge from the nipple. Excision was effected by elliptical incisions, embracing the nipple and adherent portion of skin, the whole breast being removed; the wound healed by adhesion. Section of the tumour laid open a collection of bloody puriform matter, which apparently resulted from degeneration of the cancerous structure, and which communicated with the excretory ducts of the nipple. Dr. Ashhurst requested that the specimen should be referred for examination to the Committee on Morbid Growths, which committee reported that scrapings from the cut surface showed a large amount of free fat; the cells were, for the most part, rounded, granular, and fatty, with imperfectly formed nuclei; others were larger, more angular, and epithelial in appearance, and contained large single nuclei. There were also a few mother cells, containing two or three included cells. The stroma, which was lax but markedly fibrous, showed circling and intersecting bands of fibrous tissue, inclosing groups of the above described cells.

Chronic Pleurisy: Paracentesis Thoracis.—Dr. W. W. KEEN presented the specimens, and read the following history:—

D. R., æt. 23, gilder, healthy till July, 1869, when he took cold, but was not confined to bed. Health continued poor till December, when he became worse with cough, night-sweats, dyspnœa, and great weakness. He first came under my care Feb. 21, 1870.

He was so weak that he could barely sit up in bed, suffered greatly from cough, with yellowish-white sputa. Pulse 120, and very weak. Respiration 42. On the left side, anteriorly and posteriorly, there was dulness from the clavicle to a level with the umbilicus, but just under the clavicle the dulness was not complete. The right chest was impaired in its resonance. The lower border of the liver was almost at a level with the ilium. The heart's apex beat was one inch below and half an inch inside of the right nipple. At the left apex, anteriorly, a few râles were heard, but no sound whatever anywhere else; posteriorly, a few dry râles and bronchial breathing down to the middle of the lung. The respiration on the right side was puerile. The heart sounds normal, but displaced.

The left side was evidently distended, especially anteriorly and laterally; the intercostal spaces effaced rather than bulging. Posteriorly they were visible. The entire left chest moved but little with the respiratory act. Vocal fremitus was out of the question, as his voice had been reduced to a whisper for two months. Thinking that possibly the displacement of the heart had stretched the left recurrent laryngeal nerve, and so produced the aphonia, I examined the larynx. His throat was so irritable that I was only able to satisfy myself that there was no paralysis of the muscles of the left vocal chord. Treatment: potass. iodid., cod-liver oil, milk-punch, beef-tea, and morphia, *pro re nata.*

Feb. 25. In order to make the diagnosis of chronic pleuritic effusion positive I introduced the hypodermic syringe point, and, making suction, obtained a half ounce of opaline yellowish fluid, coagulable by heat and nitric acid. His respiration was so much embarrassed that paracentesis thoracis was determined on.

26*th.* Dyspnœa greatly increased; respiration 65; pulse 142. The smallest trocar of Bowditch's apparatus (see *American Journal of the Medical Sciences,* April, 1852, and Jan. 1863) was introduced at the upper border of the tenth rib, a little in front of a line from the angle of the scapula. Half a gallon of fluid was drawn off, when no more fluid would flow. His respiration fell to 40, and his pulse to 128, and, by evening, to 33 and 120 respectively. The heart beat was nearly at the median line, and the area of respiratory murmur was slightly increased. The fluid showed nothing by the microscope save some unrecognizable fragments. On standing 24 hours a gelatinous transparent coagulum formed, which in part floated on the surface.

March 1. Respiration 29; pulse 112, but weaker. He has been able to lie on the right side for several hours with comfort.

5*th.* While greatly relieved by the operation he is sinking gradually. Pulse 130, respiration 33.

8*th.* Died at 12 M.

10*th.* Sectio cadaveris at 12 M. Body very much emaciated. Left intercostal spaces anteriorly obliterated. Puncture of operation healed.

Thorax. On removing the sternum the heart lay over to the right side, the apex to the right border of the sternum. The *right lung* was studded with small tubercles, rather scantily below but pretty thickly at the apex. It was bound to the parietes of the chest by tolerably firm pleuritic bands. The *left lung* was nowhere to be seen. The pleura was $\frac{3}{16}$ inch in thickness in its visceral layer, and $\frac{1}{16}$ in its parietal layer. The whole cavity was divided into a large number of loculi by fibrinous septa, extending across it in various directions, thin, transparent, and very easily torn. The cavity contained 3½ pints of the same kind of fluid evacuated at the operation. The point of puncture was seen as a small slightly reddened spot. The left lung was found lying behind the pleura at the upper and posterior part of the chest. About one-half of it was simply compressed, and the other half tubercular. The *heart* was normal. Both ventricles contained clots; that in the right, or pulmonary side, of large size, adherent, extending into the auricle, and almost wholly fibrinous; that of the left side, small, loose, and only partly fibrinous.

Abdomen. The *liver* was enlarged, especially its left lobe; was fatty, an admirable specimen of a "nutmeg" liver, and extended far over to the left side, and down to a level with the umbilicus. *Kidneys* and other abdominal organs healthy.

June 9. *Medullary Carcinoma of Antrum.*—Dr. MEARS presented the greater portion of the left superior maxilla which had been removed by Dr. W. L. Atlee for disease involving the antrum.

The following is the history of the case:—

R. A., æt. 53, native of England, occupation cattle-drover, has always led an active out-door life, and enjoyed the best health. Two months and a half since, on his return home from a visit to the West, during which he was exposed to many hardships, he experienced pain in the left temporal region, extending down to the upper jaw, and felt most distinctly over the site of the antrum. The pain was severe and lancinating, and was thought to be due to neuralgia. Subsequently, the three molar teeth were extracted, under the belief that the pain was due to some disease of the nerves connected with these teeth. Soon after the extraction of the teeth he felt a tumour projecting into his mouth. This tumour increased in size very rapidly, encroaching upon the cavity of the orbit of the eye to such an extent as to produce very marked exophthalmia. The rapidity of growth of the tumour clearly indicates its malignant character. It possesses the gross appearances of infiltrated medullary carcinoma. The tumour was referred to the Committee on Morbid Growths, which reported that the tissue presented very numerous cells of rounded shape, varying greatly in size, and containing one, two, or even four comparatively large nuclei. The cell contents were markedly granular, and in some instances mixed with fatty granules. There was in addition much free oil, and occasional small plates of cholesterin. A few compound granule cells were also seen. The tumour appears, therefore, to be of an encephaloid nature.

REVIEWS.

ART. XIX.—*A Practical Treatise on the Diseases of Children.* By J. FORSYTH MEIGS, M. D., one of the Physicians to the Pennsylvania Hospital, Consulting Physician to the Children's Hospital, etc. etc. etc.; and WILLIAM PEPPER, M. D., one of the Physicians to the Philadelphia Hospital, Lecturer on Morbid Anatomy at the University of Pennsylvania, Pathologist to the Pennsylvania Hospital, etc. etc. etc. Fourth edition of "Meigs on Children," revised and greatly enlarged. pp. 921. Philadelphia: Lindsay & Blakiston, 1870.

IN the department of diseases of children, the friends of American medical literature have always had much cause for congratulation. From an early period of our history, there have been treatises upon this subject of such character, practical as well as theoretical, as to bear comparison with any foreign authorities, while the wide extent of our country, its peculiarities of climate and consequent modifications of disease, render home-works peculiarly necessary, both to the student and practitioner. Among these works, "Meigs on Children" has always occupied an honourable position and enjoyed a high reputation, having passed through three editions. The present work is the old friend in a new dress, being the fourth edition, as stated on the title-page, so much enlarged, extended, and re-written, as to have required the assistance of an associate author, Dr. Pepper, whose position and reputation are guarantees as to his qualifications for the task.

Twelve years have elapsed since the third edition was published, and in that period great advances in our knowledge have been made, requiring corresponding modifications in the work, while many subjects omitted before are now supplied. The changes are briefly mentioned in the preface:—

> "Among the principal of these changes may be mentioned the great enlargement of several articles, and especially of those on thrush, convulsions, chorea, tracheotomy in croup, and parasitic skin diseases. Other articles have been entirely rearranged or even rewritten, as those upon diseases of the stomach and intestines, and upon eczematous affections. In addition to such changes, however, there have been no less than seventeen full articles added, embracing the following important subjects: diseases of the heart and cyanosis; diseases of the cœcum and appendix vermiformis, and intussusception; chronic hydrocephalus, tetanus, atrophic infantile paralysis, facial paralysis, and progressive paralysis with apparent hypertrophy of the muscles; rheumatism, diphtheria, mumps, rickets, tuberculosis, and infantile syphilis; typhoid fever and scleroma. These various additions and changes have involved the introduction of more than two hundred pages of new matter."

With this evident effort at completeness, in which the authors have been so nearly successful, we regret not to find the subject of intermittent fever and allied malarial diseases. From the frequency of their occurrence in many portions of our country, and from some peculiarities in their course in children, as, for instance, convulsions occurring during the cold stage, and in place of "chills," they would seem especially to merit consideration.

Some of the changes and additions which have been made deserve a more extended notice, and we select for examination from diseases of the respiratory organs, which stand first in order in the work, croup and its treatment, as subjects yielding in interest and importance to no other. The nomenclature of the different phases of disease to which the term croup is applied, is all that can be desired. If the plan adopted here, and by our latest and best American authorities, were universally followed, much confusion would be avoided, and the course of the student in mastering the subject rendered materially easier. Simple laryngitis, spasmodic laryngitis, pseudo-membranous laryngitis—these are the different forms, plainly marked by name and in accordance with nature. Thymic asthma, or spasm of the glottis, is not of course considered in connection with these, the application of the term "croup" to that disease being one of the confusing relics of past nomenclàture, and not countenanced by any recent authority.

The first of these diseases, simple or catarrhal laryngitis, need not detain us; nor have we much to remark upon the second form in which laryngeal spasm is, for some unknown reason, a superadded element of the disease. The parents of the patients make no distinction between this and the pseudo-membranous form, and call for professional aid in the utmost anxiety and alarm. Yet, as is carefully pointed out, it is far from being a dangerous disease; probably no other, to which anything like the dread attaches, is so rarely fatal:—

> "Of 109 cases of the disease of which we have kept an accurate record, none proved fatal, though 23 of these were of the grave form. We may state, also, that we have seen at least 100 more cases of which we have no written account, in none of which was there a fatal termination."

We have under our continual observation several instances exhibiting the tendency of the disease to run in families; whether, however, from hereditary influence, as the authors say may without doubt occur, we have been unable to determine.

The treatment of the disease has been modified from the last edition so far as to exclude depletion entirely. The authors are satisfied that it is not a necessary measure, but admit that they might resort to it in a robust child under exceptional circumstances. Calomel they have also found "less necessary than they supposed." After the use of emetics, and especially to prevent returns of the paroxysms, we have found opiates, which are recommended here, render essential service. Late experience, however, indicates to us that belladonna ranks higher as a preventive medicine than stated by the authors; they say it is theoretically indicated, but they have scarcely used it. We prescribed it almost accidentally at first; but in one family, who made more frequent calls upon us for this disease than any other, the less frequent occurrence of croup during its use became matter of comment, and they are firmly convinced that their almost complete immunity during a whole winter was due to the medicine. We have met with corroborative evidence, but still cannot boast of a wide experience.

There is one remedy for this disease not mentioned by the authors, and it is a surprising fact to us, because it is *the* remedy, *par excellence*, of Trousseau, an author very frequently quoted in the work. We allude to the application of hot water to the throat by means of a sponge or compress. The great French clinical teacher trusts to this means, and this alone; he prescribes not even the simplest emetics, as may be seen by reference to his *Clinique Médicale* (2me ed., t. i. p. 528). Credit is given by Trousseau to Graves for the plan, but Graves says (Lecture XXXIX.) that it was proposed by "Dr. Lehman, of Torgau." When called early he seems to rely upon this remedy exclusively: "I have repeatedly treated the disease on this plan, and with the most uniform success." Such authorities are ample, and we may safely rely upon such testimony; still, the current of popular prejudice would probably prove too strong for the exclusion of emetics, and they are remedies clearly indicated and of no injurious effect.

Pseudo-membranous croup presents many points of interest besides its high rate of mortality, which alone must always make it a subject of the first importance. The first point we note is the difference of views expressed by the authors from those generally held as to the essential difference between this croup and diphtheritic croup in which the larynx is involved by extension of the false membrane from the pharynx:—

> "Our personal experience constrains us to state that the differences between the two forms of membranous croup above enumerated, have not seemed to us sufficiently marked and constant to positively establish their essential diversity, and that it is our decided opinion that the vast majority, if not all, of the cases usually termed pseudo-membranous laryngitis are in reality instances of primary laryngeal diphtheria, in which the constitutional symptoms are not grave, and where the faucial deposit has been very slight, and perhaps even overlooked."

They believe that careful examination of the throat at an early stage would, "in the vast majority of cases of true croup," reveal the presence of membranous exudation on the tonsils and pharynx. At the same time they do not deny the possibility of a pure idiopathic pseudo-membranous laryngitis; indeed their own statistics show that it occurs with tolerable frequency.

> "In 31 cases observed by ourselves, in which the condition of the throat was recorded, the croup followed membranous angina in 21 cases; in 5 the disease began in the larynx, but was attended late with small deposits on the tonsils; and in 5 only was there no deposit on the throat at any time."

We do not find that quotation of authorities which we should have expected to sustain so important a pathological doctrine, not even Hillier is quoted. Indeed, so far as our researches have extended, the question seems to be left just about as the authors' experiences quoted above leave it. In the words of Niemeyer, "the coexistence of both forms of the malady, although extremely frequent, is by no means constant." Trousseau, too, says the pharynx is affected in the "generality of cases," although he cannot deny the independent laryngeal form. The latest statistics we have seen do not sustain the authors to the extent they go. Bourdillat, interne of the Hospital Ste. Eugenie, communicated to the Medical Society of the Hospitals of Paris 120 cases of croup observed in the service of M. Bergeron, and of these there were 46, or nearly one-third, without pharyngeal complication.[1] This in Paris, too, where cases without affection of the pharynx are not considered as true croup.

After all, may not different localities present the two forms of the disease in varying proportions? This would seem to be the opinion of Vogel, who rarely finds a pharyngeal membrane at Munich, while he says in Middle and North Germany the case is different, the pharynx and tonsils being frequently affected.

In regard to this question again the authors assume the anatomical identity of the membranes in croup and in diphtheria, and do not recog-

[1] Archives Générales de Méd., July, 1868, p. 125.

nize, or allude to, the doctrine of the German pathologists. We quote from Niemeyer:—

> "Croupous inflammations are inflammatory disorders in which a fibrous exudation which rapidly coagulates is thrown out upon the free surface of a mucous membrane, but which involves the epithelium only. * * * The diphtheritic process is also characterized by the production of a fibrinous rapidly coagulable exudation, but differs from croup, the exudation forming, not merely upon the surface of the mucous membrane, but also within its substance."[1]

We have perhaps spent too much time upon a pathological question to the decision of which we can bring no personal experience, since true croup is a rare disease in the section where we live. But it is an interesting question, and one which must yet remain open, since we find very high authority upon both sides of it. We are convinced, however, that be the pathological question decided in the future as it may, practically and therapeutically there will always be a wide distinction between the cases presenting profound constitutional symptoms, and those in which the local disease predominates; the especial alteration of the blood crasis and the profound adynamia of diphtheria will always be sufficient to modify both treatment and prognosis, even if the consecutive paralysis and albuminuria fail to carry conviction of an essential difference in nature.

In entering upon the treatment of this disease the importance of the early administration of remedies is justly insisted on, and the high rate of its mortality under the most favourable circumstances is acknowledged. In regard to direct depletion we find about the same remarks as already quoted in speaking of spasmodic laryngitis. The power of this remedy to reduce fever and allay inflammation being no longer acknowledged, there is no justification in bleeding *coup sur coup*, nor can it be justly a reproach to the profession that the plan was once pursued as in the acute laryngitis of Washington. The plan was correct with the light then possessed; the premises being accepted, a conscientious physician could do no otherwise than bleed, and bleed again if the disease was not checked. In the diphtheritic cases venesection is rejected entirely, and declared to be injurious; only in the case of vigorous children suddenly attacked would the authors resort to it.

Mercury, too, is entirely abandoned as a remedy for the control of inflammatory action.

> "Since the publication of the last edition of this work, our increased dislike of the administration of mercury to children in large and frequently repeated doses, and the constant observation that even its free use does not appear to arrest the course of true croup, or to prevent the formation of membranous exudation, have led us to abandon entirely its employment in this disease."

We shall not here enter at length upon the question of the aplastic powers of mercury. We cannot omit saying, however, that we much prefer to this unconditional rejection of the remedy, the more judicious position of Flint, who in a disease so rapid and so generally fatal would administer it so long as any ground exists for belief in its power. Still more do we prefer the practice of Hillier, who, although believing with the authors that croup and diphtheria are identical, "gives calomel in small doses until the bowels are relaxed with greenish stools."[2]

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[1] Text-Book of Practical Medicine, vol. i. p. 15.

[2] Diseases of Children: Philadelphia, 1868.—He says: "In some of the worst cases in which recovery has occurred, calomel has been the remedy." (p. 159.)

Alkalies are the remedies relied upon as alteratives to take the place of mercurials, and do what those medicines were supposed to do.

The chief reliance, however, is upon emetics, in harmony with other authorities. The one preferred is alum, so long known in connection with the name of the late Charles D. Meigs. We have had no personal experience with this emetic, but doubt whether it has succeeded in winning that favour in the profession at large which might have been expected from the encomiums passed upon it.

We looked with interest for further information as to one emetic mentioned in the last edition, but found the paragraph concerning it omitted entirely. We allude to the turpeth mineral (hydrarg. sulphas flava), the beneficial effects of which were maintained by Dr. Hubbard, of Hallowell, Maine. Our interest arose from the fact that this medicine has been recently again recommended to professional favour by very high authority, and in terms that cannot be held as less than extravagant.[1] This testimony does not stand entirely alone, however; independently, and at so great a distance as France, others claim to have obtained from the same remedy better results than from any or all others in this most fatal disease. Further information, therefore, as to any remedy seeming to promise control over so fatal a disease must be looked for with deep interest.

The operation of tracheotomy follows upon failure of medical means, and we find this subject considered and discussed with the care and completeness which its importance demands. It needs but to read and compare the few introductory pages upon this operation in the last and the present editions to be convinced that "the world moves," and moves forwards too. In the brief space of time which has elapsed since the other edition was issued, a great change has passed over the profession in regard to this operation; then unfavourable opinions of eminent authority, in regard to it, could be quoted in great number; it was rarely performed anywhere, and in some countries seemed almost abandoned. Without tracing the current of the change of opinion, in producing which Trousseau was perhaps most influential, we may briefly say that the operation is now everywhere established as a legitimate procedure, the results obtained by individual operators being too numerous for detail, but yielding "a result of about one recovery in four, in a series of five hundred cases." We are glad to find in connection with the statistics of the operation the results obtained by American surgeons, especially those extracted from the most excellent paper upon croup by Dr. Jacobi, of New York.[2] Added to these are the operations performed and results obtained in Philadelphia, and it is singular how closely they agree as to the proportion of cures—$23\frac{1}{2}$ per cent. in the one city, 21.4 per cent. in the other.

The danger of the operation *per se* is then canvassed, and shown by statistics, and upon the testimony of eminent surgeons, to be very slight. We suggest that the deduction from this testimony cannot be applied to the wide range of general practice. It will not do to expect the success of skilled operators from the general practitioners who operate but a few times in a lifetime, and as to statistics, it is as natural as it is devoid of doubt, that very many cases in which death occurred during the operation have never been reported. We quote the summing upi n regard to this point, and are glad to be able to call attention to the fact that the authors do not limit themselves to showing the legitimacy of the operation, but take the higher ground that its proposition and performance are sacred duties, however painful they may be to perform.

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[1] The Treatment of Croup. By Fordyce Barker, M. D., Clinical Professor of Midwifery and Diseases of Women in Bellevue Hospital Medical College, etc. Pamphlet; reprinted from American Journal of Obstetrics.

[2] American Journal of Obstetrics, May, 1868.

> "If, then, it is the uniform testimony of those experienced in the matter, that the operation is in itself alone but slightly dangerous to life, so that its performance adds but little to the danger of the patient; if it affords immediate relief to the suffocation which threatens to be soon fatal, and at least gives additional time, during which the gravity of the disease may subside; if, further, as we think has been most conclusively shown by the statistics quoted, it has unquestionably saved the lives of a considerable number of those upon whom it has been performed, it is difficult to avoid the conclusion, that it is our imperative duty to resort to the operation under certain circumstances. * * *
>
> "Our own plan, then, is to try faithfully all medical means; and being satisfied of their powerlessness, and of a certainty of a fatal issue to the case without the performance of tracheotomy, to inform the parents of the inability of our medical means to afford relief, and to propose the operation to them. * * Should they throw the whole responsibility upon us, we should without hesitation advise the operation."

None too strongly is put the relief gained for the poor sufferer from the horrors of slow suffocation, even when the operation fails to avert death. From the only case in which we performed it our experience is fully in accordance with the author's—the parents were thankful it had been done for the relief alone, although life was not saved.

The period of the disease at which the operation should be undertaken is then carefully considered. To follow Trousseau's rule of operating as soon as the certainty of false membranes in the trachea has been established would certainly insure the performance of it many times unnecessarily; on the other hand, the chances of success are diminished as the strength of the patient has been expended by delay. The most judicious course is that indicated in the quotation already made; the laryngeal obstruction being so great as to threaten life, and medical means having failed to arrest the progress of the disease, the time for the operation has arrived. It is carefully and correctly laid down that unbroken persistence of the dyspnœa is a clearer indication for the operation than mere severity of this symptom when paroxysmal in character.

It is also plainly taught that it is never too late to operate, however desperate the case may appear:—

> "Should we be called to a case where the last stage of asphyxia has been reached, it is still not too late to perform the operation. Thus, in one of the cases that occurred in our own practice, and which ended favourably, this condition was fully developed, and the bluish skin, drowsiness, and insensibility to pain, showed that the patient had already sunk into very advanced asphyxia."

They quote the forcible words of Archambault: "We should never operate too late; it is never too late to operate, so long as death is not actually present." This authority reports[1] sixty-five cases of tracheotomy in city practice (to be distinguished from hospital practice on account of better constitutions, etc. of the patients), with twenty-one cures: "nearly five-sixths of these patients had arrived at the end of the asphyxiated stage of croup; that is to say, that, to judge by the intensity of the symptoms of asphyxia, life could not be much longer maintained." The proportion of recoveries in these cases varies so little from that of the operation in general that M. Archambault goes to the opposite extreme from Trousseau, and advocates delaying the operation to the last stage of the disease, the stage of confirmed asphyxia. There will be less difference of opinion in regard to his other proposition based on these results—"*It is never too late* to operate!"

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[1] Archives Générales de Méd., Juillet, 1868, p. 123.

The contra-indications to the operation are then considered. In regard to some of these there has also been a recent great change of opinion in the profession. An age less than two years, for instance, was not long since considered a contra-indication, and there was no record of recovery in a patient so young. We find, however, a table on page 111 of this work which gives fourteen successful cases below the age of two years, one of them being at seven months. Undoubtedly this age, in a given case, would be one of the circumstances rendering the prognosis unfavourable, but "there are so many successful cases on record that the most tender age can no longer be regarded as a positive contra-indication."

The extension of the false membranes to the bronchiæ has been considered a contra-indication. In view of this it is of course important to learn the proportion of cases in which such an extension of membranes takes place and the means of diagnosticating their presence. In general terms it may be stated that membranes are found beyond the trachea in one-third of the cases; the individual experience of the authors is higher than this, five out of ten, and agrees almost exactly with that of M. Peter, which was fifty-two times in one hundred and five autopsies. As to diagnosis, it is conceded that there are no means of determining with certainty the presence of these membranes in the bronchiæ; auscultation is not reliable even when the chest-sounds are not drowned by the laryngeal stridor. The indication afforded by increased respiration of the *probability* of their presence is not alluded to, while it seems to be generally relied upon by French observers. In a most interesting discussion of this subject, by the Medical Society of the Hospitals of Paris,[1] from which we have already quoted, several eminent practitioners expressed their confidence in the reliability of this symptom; "the frequency of the respiratory movements is much greater when the obstruction is thoracic than when it is laryngeal."

The following paragraph, then, disposes of this question justly:—

> "Since, then, we can learn little or nothing from auscultation or any other means, as to the presence of false membrane in the bronchia, the question becomes one of expediency, so far as this contra-indication is concerned, whether to leave two-thirds of the patients, many of whom could certainly be saved by the operation, to perish without an effort to save them, because one-third must necessarily die, or to perform the operation with very little prospect of success on one-third, for the sake of the chance of saving many of the remaining two-thirds who must otherwise perish."

Without the context the above paragraph may possibly convey the impression that the presence of membranes in the bronchiæ is considered to be necessarily fatal. Of course this is not so; in the preceding page allusion is made to recoveries observed by the authors where this complication was present.

Of broncho-pneumonia, as a complication, almost the same may be said in regard to difficulty of diagnosis and influence upon prognosis as has been said of membranes extending to the bronchiæ. The authors call attention to frequency of respiration as a sign of the presence of this complication, and quote Millard's statement that when it is present the rate of respiration rises above fifty. Archambault, in the discussion already alluded to, says that when the respiration rises above fifty the presence of broncho-pneumonia "is almost certain." Increased frequency of respiration, then, is seen to be of bad import, indicating, as it does, two serious complications.

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[1] Archives Gén. de Méd., Juillet, 1868. Translated into Western Journal of Medicine, Oct., 1868.

Profound general diphtheritic cachexia is the most unfavourable condition for the success of the operation, and the general opinion of authorities is in accordance with the well-known opinion of Trousseau, quoted here, that, when the constitution is profoundly affected, the operation ought not to be performed. On the other hand, there are operators who, admitting the desperate condition of the patient, would still offer the operation as affording a chance of rescue. Among these is Jacobi, and his opinion, which will justly carry great weight wherever his writings upon this subject are known, is also quoted. No statistics are given of the operation under these circumstances, and we may therefore be permitted to refer to the results obtained by Spence, stated by Greenhow,[1] of seven recoveries out of eighteen cases operated on, death from dyspnœa appearing to be imminent at the time of operation; and to those of Buchanan, forty cases, thirty-one operations, eleven recoveries, and all those not operated on fatal.[2] They certainly afford encouragement to those willing to undertake the operation under what must be admitted to be the most unpromising circumstances.

The following presents a clear summing up of the whole matter:—

> "After a careful review of the entire question we believe that the facts upon record justify the following conclusions: that the condition of success which excels all others is the predominance of the characters of asphyxia; that when these are so marked that death is imminent, the operation is justifiable, despite any complications which may coexist, save perhaps the presence of grave, general diphtheritic infection; and, finally, that when no such contra-indication is present, and the dyspnœa is continuous and increasing, despite all other treatment, the operation is positively indicated, and it becomes the duty of the practitioner to recommend its performance, and, if the decision be entrusted to him, to unhesitatingly assume the responsibility of operating."

We are glad to see such high ground taken, the only ground which can be taken by any one who conscientiously examines the subject. It is in marked contrast to that of a recent author who will "neither insist upon nor directly oppose" the operation. Neither does what we have quoted from this book and elsewhere look as if the operation were falling into disfavour, as stated by the same authority. The return to it, commenced by Bretonneau, continued and aided so much by Trousseau, has extended into other countries, and we point with pride to the share of American surgeons in continuing to practise the operation, and to maintain the favourable results obtained by it.

We need scarcely say that the mode of performing the operation follows; the after-treatment is carefully detailed and some cases are reported. Thus, the disease and its treatment, both medical and surgical, are completely considered, and all the modifying circumstances detailed, a careful study of which will enable the young practitioner to place the individual case anywhere in the scale from "favourable" to "very unfavourable," and to adapt his remedies to the varying forms of the disease and conditions of the patient.

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[1] London Lancet, Dec. 1865.

[2] See this Journal, April, 1869, p. 483.

We select also for examination the article on typhlitis and perityphlitis because of the interest attaching to the disease and the value of this contribution to the literature of the subject. Perhaps we are influenced, too, by personal considerations. Not many weeks since we were called to an interesting little girl about five years old who had been rather suddenly taken with vomiting, and febrile symptoms; there was constipation which had resisted the ordinary domestic remedies, tenderness in the right iliac region, and an ill-defined fulness and hardness there. The symptoms had come on during good health, and soon after a tolerably severe jarring fall on her seat. They were aggravated by remedies prescribed for opening the bowels, and which did not overcome the constipation, and the tenderness increased in severity, and extended rapidly over the abdomen. Had we a case of typhlitis? of intussusception? or of that rarest of rare diseases, idopathic peritonitis? An attempt to gain assistance from books showed speedily how meagre was the literature of the subject. We could not find the disease mentioned in any treatise on diseases of children at our command, and in works upon practice only very briefly considered. We consider it, therefore, no small matter for congratulation, that by the chapter here furnished a void has been filled, and that information is at hand for future cases of doubt upon all the points relating to this rare form of disease.

The anatomical and physiological relations of the cœcum and its appendix are first sketched, in explanation of their proneness to certain forms of disease, and the relative frequency and importance of the two in morbid processes are considered. Then follow the causes of the disease, as age and sex; of thirteen cases observed by the authors, two were under six years, six between six and twelve years, five between twelve and fifteen years. Of the exciting causes, by far the most frequent is the presence of foreign bodies and intestinal concretions, the latter varying in size and shape, and consistence; the former being generally the seeds and stones of fruit. One point in regard to them is worth remembering:

> "It may not be amiss to remark here, that some intestinal concretions resemble, to a marked degree, the seeds or stones of different fruits, particularly of the cherry, date, and plum; and there is no doubt that many of the bodies found in the cœcum or appendix, and reported as cherry stones, or date stones, have been in reality intestinal concretions."

The pathological appearances are then described, and the course of the inflammation to ulceration and abscess traced, as well as the different course which the pus may take for escape. The histories of these fatal cases of perforation of the appendix from intestinal concretions are then detailed.

Next follow the symptoms of the disease—pain, fulness or tumour, constipation, vomiting, and fever; and they apply

> * * "To acute inflammation, both of the cœcum and appendix, as there are no well-recognized differences in the symptoms of these two conditions. The only probable points of difference are, that in inflammation of the appendix the pain is more acute, and the thorough evacuation of the bowels is not followed by the same prompt and complete relief."

We are also told that

> "Mere *distension* of the cœcum by hardened feces, without actual inflammation of its coats, may be attended with constipation, severe vomiting, and the presence of a somewhat sensitive tumour in the cœcal region."

The constipation may be relieved, and the vomiting cease, and still the inflammation pass into ulceration; fecal matter is then poured out into the peritoneal cavity with the usual fatal results, or into the peri-cœcal cellular tissue, and abscess is formed and approaches the surface.

> "It is necessary to be aware that the approach of a fecal abscess to the surface is not attended with the appearances which usually accompany the pointing of an abscess. Thus, instead of the skin becoming tense, prominent, and reddish, with a distinct sense of fluctuation present, the surface becomes doughy, and dark-coloured, and upon palpation a distinct sense of emphysematous crepitation is often obtained. Upon incising such a point, a discharge of fetid gas and grumous matter follows the puncture, and this peculiarity has more than once led surgeons to believe that they had opened a knuckle of intestine."

The diagnosis is not generally difficult; intussusception is the disease most likely to be confounded with these cœcal inflammations, and *vice versa.* Turning to the article on the latter disease for the points of difference, we find stress laid upon the greater frequency of the vomiting in intussusception, and the frequent discharges of blood in addition to the marked constipation. It is pointed out that in the cœcal inflammations there is—

> * * * "A marked degree of fever, and the symptoms of peritonitis appear early in the case; *the patient assumes a characteristic position, with the thighs flexed upon the pelvis,* and the right iliac fossa is the seat of exquisite tenderness, so that the slightest pressure cannot be tolerated. The vomiting and constipation are not so marked and obstinate, * * * and there are no bloody discharges."

We have italicized one portion of the above paragraph, because it was a marked feature of the case under our care and already alluded to. One thigh, however, the right, was alone drawn up on the abdomen, and it could only be completely extended after complete recovery. As, happily, we had no opportunity to verify our diagnosis, this symptom alone seems to be satisfactory as to the nature of the case.

The treatment is to be directed to the allaying of inflammation, the palliation of pain, and the promotion of the natural action of the bowels. Since, in many cases, the disease depends upon the impaction of a foreign body, violent perturbative treatment is clearly forbidden. Depletion, by leeches, is advised in acute cases.

> "The experience of all observers agrees in condemning the use of powerful irritating purgatives at any stage of typhlitis. In the early stage they aggravate the pain and inflammation, increase and establish vomiting, and frequently fail entirely in their object."

The administration of laxatives in combination with opium is counselled, and the authors have been led by experience to prefer the compound extract of colocynth with opium, the effect of enemata being brought to assist in opening the bowels.

As to mercury, it is practically rejected; the authors say: "it is difficult to support the practice of giving this drug in typhlitis," although "a small dose of blue-pill or calomel" may be administered in the early stages of the disease, and admit that, "in a large number of the successful cases on record, this was given."

Our own case sustained the principles of treatment here laid down in a striking manner. Laxatives, and enemata thrown high up into the bowel by means of a tube, the nature of the case not being so clear then as now, increased the distress of the child and aggravated the disease;

the administration of opium alone brought amelioration of the symptoms, and it was carried to doses which may be termed enormous, for a child of that age, fully illustrating what the authors say as to this drug: "its use is absolutely called for, and the violence of the local symptoms, the pain and exquisite tenderness, form the best guide as to the amount required." After some forty-eight hours of this treatment, and while the case was yet in extreme doubt, calomel was given with each dose of the opium; in due time it acted upon the bowels, not before opened, producing the characteristic stools, and coincidently with this recovery began.

The subject of intussusception follows, one that is second to none in interest or importance. The chapter upon it is complete, excellent in every respect, and well worthy of examination; but we have already extended this review beyond our intentions. We had marked several other subjects for comment, which must pass with briefest notice. The full mortality tables of different diseases, compiled from the city records of Philadelphia, furnishing valuable statistical information, are well worthy of mention. We should have liked to have said something upon the analogy which is traced between the summer inflammatory diarrhœa of children in our cities and the camp diarrhœa of our armies in the late war. Bad diet, heat, crowding, want of cleanliness, act the same in both cases; the anatomical lesions are stated to be precisely alike in both; yet we would suggest long-continued exposure to the influence of malaria, and powerfully depressing mental causes, as two influences present in the one class of cases and not in the other. We would call particular attention to the fact that Parkes' statement as to the general acid reaction of healthy pasture-fed cows is corroborated by actual examination; and that a careful examination, made by the authors, shows that woman's milk is neutral in the vast majority of cases, instead of alkaline, as generally stated by authorities. The whole subject of diet, and everything relating to the feeding of infants and children, is treated in such a manner as cannot fail to prove of the greatest service to the young practitioner. We here cheerfully bear testimony to the good effects of the gelatine food, recommended in former editions as well as this. For children with bowel complaints we have generally found it the best article of diet we could use, and for infants deprived of the breast it has never disappointed us in more than ten years' experience. The celebrated "Liebig's food" has not always met our expectations; it is difficult to prepare; on the other hand, in some cases, and especially when costiveness is a prominent symptom, it has acted admirably; its laxative properties, of course, unfit it for use in cases of diarrhœa.

We leave then the consideration of special diseases for the purpose of commenting upon the therapeutical aspects of the work, and especially upon some particular medicines and modes of treatment. First of all we may observe that in therapeutics the work is full and ample; there is no sacrifice of the space devoted to treatment for the details of pathological anatomy. The young practitioner will find the various measures of treatment detailed and their value compared, so that he can intelligently choose from them for the case he may have in hand.

There is an especial reason for looking somewhat closely into the therapeutical doctrines of the work; it is found in the following paragraph:—

> "When the last edition of this work was published, eleven years ago, a great change had begun to take place in medical opinion as to the proper treatment of disease, and especially of acute disease. In that edition this change of

opinion was referred to, and its effect upon our own convictions and methods of procedure fully acknowledged. Since that period this revolution, as it might be called, has continued to make progress until, at the present moment, no one can candidly express his own views without referring to it."

The change alluded to is, of course, in regard to all the remedies known as "antiphlogistic," and it is our duty to note to what extent this change has gone, and in what position it places us. The leading remedy of the class, direct depletion, need not detain us long. The views of the authors have already been given in the treatment of croup, and if they do not prescribe the remedy, as a rule, in a disease so rapidly fatal as that it is not to be expected they would do so in any. They fortify themselves in their position of occasional use of venesection by reference to Chambers, Bennett, and Niemeyer. Still, it is only very exceptionally that these authorities resort to the remedy in adults, and considering how poorly children bear loss of blood, as shown by accidents and in operations, it should be still more so with them, and we cannot but think that constant mention of it in the list of remedies is more in deference to custom, and old ideas not yet shaken off, than from conviction of its necessity. We have never seen a child bled and never expect to. Where we live, and we think we may speak for a wide region besides, the proposition to bleed a child would be apt to bring a practitioner into unenviable notoriety.

The condemnation of antimony is sweeping, and, so far as young children are concerned, we shall not take exceptions to it, although we have certainly not seen often such serious results from so small doses.

> "In the last edition of this work, it was stated that tartar emetic, in the dose recommended by some of the highest authorities of the day, had been found by us a very dangerous drug. Time has but confirmed this opinion. At that time we were in the habit of administering it in doses of a forty-fifth or sixtieth of a grain every hour or two hours."
>
> "Antimony, even in these small quantities, sometimes causes a very peculiar general prostration, perhaps without any vomiting whatever, or with only a rare effort at that act, the patient would refuse all nourishment, become very pale and weak, grow limp and motionless, take on a haggard and pinched expression of face, pass into a state in which it would pay no attention to what was going on around, be very peevish and irritable when disturbed, get a very frequent and feeble pulse, and look to an experienced eye as though a very little deeper degree of such prostration might end fatally. After seeing this condition a few times, and finding that the withdrawal of the drug and the use of small doses of brandy was followed by rapid improvement we learned the greatest caution in the use of the remedy. Of late years we never give tartar emetic at all."

We make these extracts from the chapter on pneumonia, and it was not to be expected that we should find mercury relied upon for the cure of that disease. It has already been seen that it is not relied upon for the control of croup, and it is explicitly rejected in bronchitis. From the chapter on pleurisy, we extract the following:—

> "The experience we have had since we last wrote has not at all increased our faith in this remedy [mercury]. We believe that as time goes on and knowledge grows, there is good reason to think that the good effects formerly ascribed to calomel in such a variety of diseases, were due to the medicines given with it, and particularly the opium (without which it was not often used), the ipecacuanha, the salines, and even the antimonials."

From all this we are to infer the entire rejection of mercury as an *aplastic* agent; a denial of any power of this medicine to control inflammation. We certainly did understand this to be the ground taken by the authors from its entire exclusion from the treatment of so many inflammatory diseases. Yet on turning to the treatment of simple meningitis we find the following, parts of which we take the liberty of italicizing:—

> "The remedy [purgative] usually given and most highly recommended is *calomel*, which is chosen for its sedative and alterative properties. * * * After the purgative doses have been given, it is important to continue the mercury in smaller quantities, *with the view of obtaining its specific influence upon inflammation*."

The query suggests itself here whether this has not been admitted by an oversight in the revision of the work. If not, then why is not the "specific influence" brought to bear upon other inflammations? Certainly some explanation seems necessary for the entire and unconditional rejection of a remedy in so many inflammatory diseases the power of which over the inflammatory process is so expressly acknowledged.

In the brief paragraph quoted above there is another important admission as to calomel—its "sedative and alterative properties" when used as a cathartic. It does not stand alone in the work. We quote from the treatment of convulsions:—

> "The best purgative in severe cases occurring in hearty children is *calomel*. It is advantageous because of its easy administration, its speedy operation, and the *powerful sedative influence* which it exerts upon the whole economy."

This saves us any argument to prove that calomel *has* a special power and influence as a cathartic, as indeed almost every individual cathartic has, and that that influence is one profoundly affecting the whole system, affecting it, too, beneficially, as a general rule, in inflammatory and febrile affections. We are forced then, to inquire why it is not prescribed in inflammations generally. We do not find it so prescribed. In the treatment of laryngitis with spasm mercurial purgatives are declared unnecessary; in pneumonia a little castor oil or syrup of rhubarb is said to be sufficient; and this powerful influence as supplemental to, or as a substitute for other antiphlogistic remedies seems generally ignored. To this comment we must add a word upon the exclusion of it from the treatment of typhlitis already detailed. We believe it will be everywhere conceded that if there be any remedy likely to "stay down" when vomiting is a prominent symptom, and any remedy likely to do good, when that vomiting is associated with constipation, it is calomel. Yet we have seen compound extract of colocynth is preferred to it. With all due deference we cannot but say that this looks like an undue prejudice against mercurials—an antagonism which has been carried beyond the limits of sound judgment.

The great leading remedies for the control of inflammation being rejected, it remains to inquire what is left to us for the management of this morbid process. In some cases, as pneumonia, sulphuret of antimony; in others iodide of potassium, the salines, and ipecacuanha, with the general care and management of the patient excellently detailed. We do not find that distinct recognition of the doctrine laid down by some recent authors, that we can do nothing directly to control this process, and that our powers are limited to placing the patient in conditions favourable to recovery. We are left then to fight it and carry on the combat with hygienic measures, salines, and a few purgatives which must not be mercurial. The question forces itself upon us whether, in following this plan, we should be free from the reproach that the pursuit of our profession is a "meditation upon death."

We regret then to have looked through the volume in vain for any directions for the use of some other medicines having no mean reputation in inflammations. Digitalis, veratrum viride, or aconite are not there, or certainly escaped our observation. These are all depressors of temperature, and modern research has re-established the Galenic doctrine, that fever *is* increased heat. The two latter are powerful depressors of the circulation, and of respiration; in thoracic inflammations doing just what the latest and most enlightened advocates of venesection claim it does for the labouring organs, lessen the work they have to perform, and applies as nearly as we can to these organs the great surgical principle of rest. Moreover, does not recently gained knowledge of the influence of the organic nervous system upon bloodvessels indicate that we shall find remedies for the control of inflammation among such medicines as these? That the antiphlogistic battle will hereafter be fought in the nervous instead of in the vascular system? It will not do to object that these remedies are too powerful for children; certainly not while we prescribe hydrocyanic acid, and strychnia, and arsenic. Like these, they will require care and great watchfulness. The veratrum may not be adapted for children of the more tender ages, but abroad it is already known as the "American remedy for pneumonia," and there as well as here has most excellent authority for its use in diseases of children.[1] Aconite as a remedy for the control of inflammation has many warm friends; although we may not be able to partake of the enthusiasm of some,[2] we are partial to it; but so far as general use in the profession is concerned, Hirtz[3] undoubtedly expresses the truth: although its powers in moderating the frequency of pulse and respiration, and in lowering temperature, have been well established and show its value, it is still a remedy which "belongs to the therapeutics of the future."

But we have something more to say in regard to mercury. Besides its use as an aplastic agent, and as a cathartic, it is used quite as frequently, and has been considered quite as important as an alterative in some of the bowel affections of children. The views of the authors as to this use of the remedy will be seen from the following quotations, which, although somewhat lengthy, cannot well be omitted:—

> "*Calomel* has been so highly recommended, and so long employed in these cases [entero-colitis], that we feel some hesitation in saying how often it has disappointed us. Certainly we have found in many children that it was of no evident use, and in the old-fashioned doses of a grain or half a grain, we think it only adds to the irritation of the bowels. In doses of the twelfth and eighth of a grain with chalk and opium, every two or three hours, we formerly thought it was sometimes useful, but we cannot resist the impression which years have given us, that the useful agents in these instances have been the chalk and opium, and especially the opium."

There is, in this chapter, a very feeble recommendation of small doses of blue pill. The remarks on the treatment of cholera infantum close as follows:—

> "The opinion was expressed in the last edition of the work, that the doses of calomel usually recommended were too large for young children, and were apt to aggravate the existing irritation of the digestive mucous membrane, and that such doses of a remedy acknowledged to be a powerful sedative,

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[1] J. Lewis Smith on Diseases of Children; Ellis on Children; B. Fordyce Barker on Croup.

[2] Sidney Ringer, Handbook of Therapeutics.

[3] Nouveau Dict. Pratique, tome i.

could not be proper in a disease which constantly tended towards exhaustion and collapse. It was also stated that the small doses which we did recommend had been declared by some critics to be entirely too small, and that to this we could only reply that the larger and more careful, and we hoped, the wiser our observation had been in the last few years, the more thoroughly convinced were we that the larger doses, such as were formerly recommended and used by nearly all writers and practitioners, were not only unnecessarily large, but most seriously objectionable. We went on to say that the indiscriminate use of this remedy, in nearly all cases of the gastro-intestinal diseases of children, became with some, we believed, a mere routine habit—that they never tried what might be accomplished without it, but went on pushing the drug in constant doses, when the cases if trusted to simpler means, or were left to the effects of nature, would often do much better, we had learned to believe, than when these delicate organs were made the receptacle of doses that could not but tend to keep up the nausea, and vomiting, and diarrhœa, which form so important a part of the morbid phenomena. The experience we have had since that time has but confirmed us in these opinions. Indeed, we have been so often disappointed in obtaining any good effects from this drug, and have so often had reason to think that instead of allaying nausea and vomiting it increased them, and added to the exhaustion, which is one of the dangers always to be contended against, that we have virtually abandoned it. We will add that the conclusions reached by the Edinburgh Committee of the British Medical Association as to the want of power of mercury to increase the flow of bile from the liver, which has been the great theoretic argument for its use in the gastro-intestinal diseases of children, have tended to confirm our doubts as to its utility in cholera. Not that we think that conclusions reached by experiments on animals should weigh against the careful experience of competent medical men, but when they come to confirm doubts raised in ourselves by actual observation of the sick, we cannot but take them as confirmatory evidence of the correctness of these doubts."

That these are honest convictions derived from careful observation we cannot doubt; the sincerity and the competency of the observers are beyond question. They have, too, the very high authority of J. Lewis Smith to sustain them, so far at least as failure to recommend mercurials in these diseases is concerned. Nevertheless, this rejection of mercurials in these diseases is opposed to our own convictions and experience, and to the general practice of the profession in all the cities of the South and West, where these diseases prevail during the summer months. The former may be worth but very little; still if there is anything in therapeutics, of which we have felt assured—anything which we have felt confirmed in from bedside observation—it is the value of small doses of calomel to check vomiting, and to correct the secretions in the summer bowel-complaints of children. We appeal with great confidence to the general verdict of the profession, and we make this appeal with the more confidence, because we have consulted many practitioners of great clinical experience upon the point, and we trust if our appeal be not sustained by the great majority of the profession, it will be made manifest, that we may at least indirectly help to clear up this point.

Because calomel has been indiscreetly used, because it has been prescribed as a matter of routine, and continued day after day, as intimated, instances of which we have seen, and the patients have been thereby injured, it does not follow that there is not a proper way to use it, and a way in which it will prove beneficial. If, again, the question were only in regard to the use of small doses of mercurials in cases of *chronic* diarrhœa we might not object so strenuously. And here we cannot fail to remark that, following the first quotation we have made on entero-colitis, are extracts from Dr. Woodward's works on camp diseases, showing that mercurials are injurious in chronic army diarrhœa, and the inference is conveyed, although not distinctly drawn, that therefore they are injurious to the diarrhœa of children. Similar as the diseases may be in symptoms and anatomy, we must maintain that the results obtained by medicines in a disease essentially chronic is no fair criterion to judge of their value in the same disease which may come under treatment in its earlier stages. It is at the beginning of the disease (inflammatory diarrhœa, "entero-colitis"), or occasionally for a brief period during its course, that small doses of calomel do good by changing the character of the discharges, checking the vomiting, and modifying the condition of the digestive organs, as shown by cleaning of the tongue, and thus preparing the way for antacids, opiates, and the more direct astringents.

In considering this question it is also to be carefully kept in view that the advocates of the mercurial treatment are not bound to explain its mode of action. Undoubtedly the current explanation, as to "increasing the secretion of bile," is incorrect; it must be said that recent researches, among which those of J. Lewis Smith are most important, have proved that in these cases the liver is not affected to the extent generally supposed, and in many cases not at all. But there are other organs and structures to be influenced besides the liver. The mucous membrane of the stomach, of the whole digestive tract, and the intestinal glandular system are to be considered. We cannot, therefore, see any bearing upon this question, even to "confirm doubts," of the results obtained by the Edinburgh committee by experiments upon dogs. The question is one of "rational empiricism," to be decided by observation at the bedside, and not by experiment upon animals. Were the ground taken by Thudichum established, that "calomel is not a cholagogue, but *diminishes* the secretion of bile," it would not affect the question in the slightest; the only point is, "Does it do good?" and to insist upon this is only to insist upon the simplest rules of logic.

We write thus in favour of small doses of mercury under a full sense of the responsibility resting upon us. We live in a region where the profession is paying a heavy penalty for abuse of this remedy; where reckless routine resort to it, during a period when medicines were scarce and difficult to obtain, and "bilious" disease more prevalent than now, has built up a schism in its ranks; and where many years must pass before the popular prejudice arising from misuse of the remedy will be allayed. With all this before us we must still maintain that it is a safe remedy when used properly, a valuable remedy, and in no disease more valuable than in the bowel complaints of children.

We might here say a word perhaps with benefit to the young practitioner, who, seeing such wide differences of opinion upon the action of such medicines as these and others—alcohol, for instance, the therapeutic merits of which are just now so keenly debated—may be tempted to doubt and fall into a state of sceptical carelessness. There are better lessons than this to be learned. Such discrepancies of opinion mark the restless activity of our science and our art, and are a measure of the progress we are making. From them he may learn to duly estimate the complexity of the problem to be solved when the powers of a medicine are to be ascertained, and especially its value as a remedial agent when administered in combination. In all these cases the *facts* must be the same; it is the observation and the interpretation of the facts which differ; "where human reason begins certainty ends." He may therefore learn the necessity for close observation and caution in coming to conclusions. He may find cause for congratulation, too, that he belongs to the "broad church" in medicine, bound by no dogmatic formula to any narrow sect, but allowed the widest latitude of opinion—a latitude which affords at once the fairest opportunity for the development of individual skill, and for the relief of human suffering.

Led on by the interest of the subjects we have selected, and by the desire to give material for judgment as to changes from former editions, we have extended this review far beyond our original intention. We have noted some few omissions, found some things unavoidable in a period of transition, and in adapting a work to present views which was written when other doctrines prevailed, and upon some points have been obliged to differ widely from the authors. Nevertheless, there is but little to find fault with compared with what there is to praise, and perhaps if we said all we felt we might endanger the value of our praise by over-laudation. It is the most complete work upon the subject in our language; it contains at once the results of personal observation and the experience of others; its quotations from the most recent authorities, both home and foreign, are ample; and we think the authors deserve congratulation for having produced a book unequalled for the use of the student, and indispensable as a work of reference for the practitioner. J. C. R.

Art. XX.—*Fourth Report of the Metropolitan Board of Health of the State of New York*, 1869. 8vo. pp. 594. New York: D. Appleton & Co., 1870.

If the application of recognized sanitary principles to the improvement of large cities might have been, a few years ago, regarded as more or less experimental, this is certainly now no longer the case. Besides the remarkable check given to cholera in London, Paris, and elsewhere in 1866, our own cities exhibit a similarly impressive record. In that cholera year the mortality of Philadelphia, owing to sanitary precautions, was 300 less than that of the year before, notwithstanding several hundred deaths ascribed to cholera. And now, the report before us attests that, with an increase of population, the aggregate mortality of New York is decreasing.[1]

That there is need for unremitting efforts of the same kind still, is palpable. In the week ending July 23, 1870 (the hottest week of this year), the number of deaths in New York was 1048, of which more than three-fifths were of children under five years of age, and nearly 400 were from cholera infantum alone. This has been exceeded only once in New York, in the third week of July, 1868; when, with a mean temperature of 88°, the number of deaths was 1142.[2] For the corresponding week of the present year, 1870, the mortality in Philadelphia was 601; of which 352 deaths were of children under the age of five years.

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[1] We find, however, that while in the statement made to this effect (p. 8), the total mortality of New York is put at 24,601 for 1869, in another part of the work (p. 262), the sum for the four quarters is 25,167. The first number is for the twelve months ending October 1, 1869.

[2] Report, &c., p 252.

But perhaps the most important proof of a satisfactory progress in sanitary improvement, and certainly that which gives the greatest hope for the future, is to be found in the cheerful acceptance and growing appreciation of the measures taken by the Board of Health, by those among whom they operate—the poor and ignorant inhabitants of the worst districts, and the richer, but sometimes little more enlightened, owners of the crowded dwellings.

> "In the quiet, unostentatious visits of the experienced medical Sanitary Inspector sources of disease are discovered and removed, badly ventilated apartments are thrown open and exposed to that source of life and health—*pure air*—which, through interest, cupidity, or ignorance, has been denied admission; habits of personal cleanliness have been inculcated; advice upon general sanitary questions, vital to every person, has been given, and, from its disinterested and acknowledged professional value, has been received in a grateful and appreciative sense by those to whom it was directly and infinitely valuable.
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> "Looked upon as these visits were, at first, with distrust, as an interference with personal rights, the sanitary inspector is now welcomed into those dark abodes of misery and neglect; doors are thrown wide open, and hidden sources of disease are exposed to his view. His suggestions and advice are received and acted upon to a degree that it was hardly possible to believe. In the inspector they recognize their true friend." (p. 65.)

Such is the language of Dr. Moreau Morris, Assistant Sanitary Superintendent; and it is confirmed by the testimony of nearly all the sanitary inspectors, whose reports, numbering more than twenty, are given in this volume. For brevity, we select only a few passages, from the report of Dr. E. H. Janes:—

> "The results of my three and a half years of experience, as Sanitary Inspector, have been eminently satisfactory. The subject of ventilation, and the improvements made therein, have received full attention, and contributed largely to the comfort and cheerfulness of tenement-house occupants. This is seen in the diminished amount of sickness and mortality in tenement houses since these improvements have been introduced. It is seen in the expressions of satisfaction and gratitude with which the inspector is greeted at his final visit for re-inspection regarding the extent and character of the improvements made. It is also seen in the increased willingness on the part of owners to not only comply with the requirements of the law, but to do whatever may be necessary for the welfare and comfort of their tenants. As a foul atmosphere and filthy surroundings not only beget physical disease and death, but also tend to degenerate the moral and intellectual status of those constantly exposed to such influences, so will pure air, uninterrupted sunlight and cleanliness, conduce to improve the health, increase the physical as well as the moral and intellectual energies, and thus, to a certain degree, elevate the entire condition of the tenement-house population. Owners are beginning to appreciate this fact, and hence are not only willing to comply, but often manifest an anxiety for information concerning the spirit and requirements of the law, without waiting for a formal notice from an officer of the board. By this course they not only comply with the law, and thus escape the penalties, but, by improving the condition of their tenants—morally as well as physically—they prepare the way for a more speedy and available income from their investments."—(pp. 111, 114.)

In one district only, that of the township of Greenburg, has opposition been met with to the action of the Metropolitan Board; and this was due, not to the people of the district, who manifested their desire to obtain its useful service, but to the local official authorities, backed by three or four resident physicians; the antagonism being referred there to political influences.

On the subject of tenement houses there is much interesting matter in this Report. A law passed in 1867 provides that "no dark bed-rooms shall be allowed to exist; but that every sleeping apartment shall, unless open to the air, have transom windows connecting it, either directly or indirectly, with a ventilated hall. Also, that all privies shall have sewer connection; and that all cellars are uninhabitable that do not fulfil certain hygienic conditions." Under this ordinance, the board has closed the most dangerous cellar lodging-houses of the city, thus bringing nearly three thousand of their wretched occupants into more healthful dwellings above ground. With all the care yet taken for their improvement, certain houses yet are "dens of death," and certain streets "death's thoroughfares." Three of these (p. 61) afford a mortality, for particular piles of tenements, at the rate of 40, 59, and 75 deaths annually to 1000 inhabitants. Even in a naturally salubrious locality, as in the 15th Ward, many of these houses present a death-rate of 38 in 1000—double the average mortality of the ward.

The difficulties of ventilation in these houses are very great, because of their construction and crowding; and the right disposal of night-soil, or "conservancy," continues to be a problem. Water-closets are undoubtedly the best, if they are kept in order; but they are not so, in such a population. Lighting, cleansing, and house-drainage are all, as yet, insufficient. For privy use, probably the "school-sink," advocated by Dr. Janes (p. 113), would be the best arrangement in such dwellings. It is a long tank, with an outlet at one end, secured by a plug and a hydrant or draw-cock, for the supply of fresh water at the other end. It needs the care of a reliable person to attend to it daily. Such a contrivance was used with very good effect in some of our United States general hospitals during the war. On all accounts, one of the most important of all tenement-house improvements must be, as urged by Mr. Worthen, engineer of the board, and others, that every owner of tenement houses should be obliged to employ a responsible head or overseer to protect the neat, and compel the dirty to keep clean; and to be accountable to the Board of Health for the execution of its enactments on the premises. For garbage, Dr. Morris, assistant Sanitary Superintendent, approves, and carries out, at his own house, the disposal of it all by burning. Mr. Worthen thinks that, in the tenement houses, "if in every suite of apartments there were ready means of getting rid of all liquid waste into the sewer-pipe, all the garbage might be disposed of in the cooking-stove." Reference is made in a note to an invention of W. R. Gilbert, Darjeeling, India, for burning the products of dry sewerage, as well as to Hickey's process of "carbonization or dry distillation;" by which, conducted in close retorts, a gas is made, useful for illumination or for heating furnaces. The poudrette left is said to be innoxious, and a good fertilizer.

As to tenement-house mortality, Drs. Harris and Norton remark upon the instructive fact that the gain to life of the city, in the midsummer period, of 1869 over 1868, occurred as a whole *in the tenement houses;* the total gain in these dwellings exceeding the aggregate difference in the mortality tables for the period in the two years. (p. 253.) It is to be remembered that a very large proportion of those who die in hospitals, and other public institutions, are sent thither from the tenement-house population. In these, also, similar facts appear.

"In 1868 the percentage of deaths in the public institutions was 17.33;[1] in 1869 it was 16.15, a gain of 1.18 per cent.

"In 1868 the percentage of deaths in the private houses, hotels, boarding-houses, and other residences of New York, other than tenement houses, was 24.21; in 1869 it was 31.06, a loss of 6.85 per centum.

"In the former year the percentage of deaths in tenement houses was 58.46; in the latter it was 52.79, a gain of 5.67 per centum." (p. 345.)

Putting these statements together, we find that it is almost exact to say that while the total mortality to be ascribed to the tenement houses in 1868 was 75.79 of the whole mortality of the year, in 1869 it was only 68.94, a gain of 6.85 per cent. Dr. Norton employs another graphic mode of expression for his estimate of sanitary improvements already accomplished, in these words (p. 337):—

"Whereas 39,272 windows were put into dark bed-rooms of tenement houses during the year; and whereas, there was a saving of 1265 lives in that portion of the population that lives in tenement houses, it follows that one life was saved for every thirty-one windows so constructed."

If this be an approximation only, as of course must be the case, yet it is not likely to be an exaggeration of the real benefit conferred by such improvements.

Under the head of "Contagious and Infectious Diseases," the Report mentions repeated outbreaks, of moderate extent, of both typhus and typhoid fever. They were traceable to certain "centres," spreading thence, as alleged, by personal communication. In the case of typhoid, this is expressed by Dr. E. Harris, the Sanitary Superintendent, as occurring by "the movement of the sick, or of their attendants, who in turn became sick." These sources of fever were promptly controlled by sanitary means; the chief of which was repeated and abundant disinfection, with heavy oil of coal tar and sulphate and sesquichloride of iron. Relapsing fever does not appear to be named anywhere in this Report. The greatest amount of interest centres upon the progress of, and successful conflict with, an epidemic of smallpox. At the beginning of the year an increase in the amount of this disease led to the public announcement by the Board of its advice to all to attend to vaccination, with the offer of it, gratuitously, at certain hours and places. But the classes and individuals most requiring protection were not thus reached. In May the contagion was found to be lurking in nearly a hundred different localities in the city. Then the Board, very wisely, undertook general vaccination, by systematic house to house visitation. This was accomplished by eighty physicians, of whom sixty were especially appointed for the purpose. Nearly one hundred and seven thousand families, and thirty thousand houses, were thus visited, making the needful inspection of almost half a million of the population of the city, and actually vaccinating more than thirty thousand. No coercion or intimidation was used, but all were invited and urged to avail themselves of the protection of vaccination against the threatening prevalence of smallpox. The material employed was carefully selected by all the vaccine physicians of the city; *eighth-day lymph* only being used, not more than thirty-six hours from the arm; and the result was inspected at the end of a week in all cases. The lancets used were frequently cleansed with carbolic acid.

In consequence of this thorough work, it is stated (p. 209), that "smallpox, which threatened to overspread the city, was at once arrested, with the exception of here and there an isolated case, exceptions always to be met with in a cosmopolitan city, independent of any epidemic influence."[1]

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[1] That is, per cent. of the whole annual mortality.

We are clearly justified in contrasting this result with the well-known history of the fearful epidemic of smallpox during the present year, in Paris; where, with deaths numbering, from this cause, between one and two hundred in a week (in one week in July, 267), a total of more than seven thousand cases occurred between January and May, with a mortality, in the hospitals at least, of one death in six or seven cases. There is ample reason to believe that all this was due to the *unsettlement of public confidence* in vaccination, brought about, especially, by exaggerated statements and rumors concerning vaccinal syphilis. Upon this subject, we have at hand an exhaustive *résumé*, by M. Brouardel,[2] from which we may cite the conclusion given by M. Depaul, in his report published in 1865.

> "I do not suppose that it will come into the mind of any one, that we are to renounce the immense benefits of vaccination. Millions have been inoculated with vaccinia; and although it has been already too often repeated, vaccinal syphilis constitutes at last but a very rare exception."

All the best authorities now agree that it is never the vaccine virus, but *blood* taken improperly with it, that accounts for this rare danger. Brouardel adds, that "almost in the immense majority of cases a syphilitic 'vaccinifère' does not give syphilis to those inoculated from it." In the Paris hospitals, according to the same writer, *cow-pox* is used exclusively. If this be altogether or in part obtained by inoculating the heifer with human variolous matter, this may make a difference in the result. Chauveau's elaborate experiments,[3] attested by a committee consisting of MM. Viennois, Meynet, Delore, Lortet, &c., have shown that variolous inoculation of the cow does not cause vaccinia—often no eruption at all—and that what does occur is variola, and has produced smallpox in children inoculated from its pustules. Danet[4] of Paris, after an independent investigation, arrived at the same conclusion; and so did Dr. Cutter, of Boston, who, after inoculating fifty cattle with virus of smallpox with no eruption, vaccinated the same animals with the true, spontaneous cow-pock virus, and had the characteristic vaccine disease to follow. Our reason for making these citations is not only the importance of their subject, but the fact that Dr. E. Harris differs (p. 215 of *Report*) from the judgment given by Dr. Loines in the Report of the same Board for last year, in favouring the renewal of the stock of vaccine virus by smallpox inoculation of the heifer. The strong doubts existing as to the validity of this process, and its many inconveniences even if reliable, ought, we believe, to exclude it from use; while the occasional *rejuvenescence* of the current supply of virus from *spontaneous vaccinia* of the cow stands upon quite other grounds, and is justifiable and desirable, although degeneration of the human virus, with proper care, has not yet been proved to occur. At all events, the experience of New York in the past year confirms the truth of the general principle, that *the prevalence of smallpox is in inverse proportion to the universality of vaccination.* In J. Simon's words,[1] "A local prejudice against vaccination would be a reason for inquiring into the skill with which, in the prejudiced locality, vaccination had been administered." A full observance of the "Jennerian" rules everywhere is alone required, we believe, to obtain the fulfilment of Jenner's own prediction, that the annihilation of smallpox must be the final result of the practice.

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[1] Referring to the statistical tables of the Report, however (pp. 250, 254, 259), we regret to find no explanation of the fact, that while the deaths from smallpox in the 13 weeks ending July 3d, were 45, and in those ending October 3d, 32, in the last quarter of the year, ending December 31st, they were 109. Of these deaths, 70 occurred in two wards, in which very few cases occurred early in the year; possibly, therefore, in them, vaccination may have been less complete.

[2] Revue des Cours Scientifiques, 25 Decembre, 1869, *et seq.*

[3] Revue des Cours Scientifiques, 1 Jan., 1870.

[4] London Medical Times and Gazette, Feb. 23, 1867.

Another subject upon which it is natural to look to this report for information, and some discussion of principles in view of recent facts, is Quarantine. The most direct reference to it (pp. 28, 29) is very brief. As to yellow fever, the following language occurs :—

> "Vessels from the West Indies frequently brought yellow fever into port during the summer months, but the care taken at quarantine to cleanse and disinfect them was so efficient, that the public health suffered no detriment from this cause."
>
> Again, pp. 48, 49 : "The restraints which are placed upon ships and goods from ports infected with yellow fever, under the requirements provided in the Code of Health Ordinances, were applied as leniently as could be justified." "This scourge may justly continue to be dreaded, though it seldom strikes. It does not respect sanitary regulations nor medical skill in such manner as to warrant any relaxation of the rule which excludes the infected ships from the docks in the commercial districts of New York and Brooklyn. Fortunately the sanitary art of protecting ships and cargoes against infection may yet be so practised as to give greatly increased, and perhaps, perfect security against this scourge of the American tropics."

It is also mentioned that some of the emigrant ships having fatal typhus and scurvy on board gave more anxiety, and did more harm this year, than all the yellow fever that has reached the port of New York in the past three years. Waterside inspection now generally finds the sanitary condition of vessels from the West Indies good. Hard-earned experience of gulf-traders has taught many of them, that cleanliness in every part of the ship is essential to health; and their vigilance is reinforced by the severe restrictions of quarantine.

It may be wise to avoid unnecessary discussion of the nature and occasion of these restrictions, the topic having sometimes given rise to popular agitation. But late facts show that the much-to-be-desired harmony between the interests of commerce and sanitary regulations has not yet been reached. During the present summer several vessels, destined for New York, being restrained by quarantine, put off their cargoes at Perth Amboy, New Jersey. One of these (the barque *Wavelet*) was afterwards forcibly seized under the orders of Dr. Carnochan, health-officer, and hence has resulted litigation on the part of her owners. The local dangers of quarantine have also been painfully demonstrated this season near Philadelphia by the infection of the lazaretto, from a West India brig (the *Home*) detained there ; the port-physician, Dr. Thompson, the resident nurse, and several others losing their lives by the disease. It illustrates somewhat the *local* nature of this infection to observe, not only that these cases all occurred near the site of the tainted vessel (two men who left being, soon after, taken ill in the city, and dying without any other cases following) ; but, further, that the local sanitary condition of the lazaretto on the Delaware is worse this year than ever before, being made so by the unprecedented flood of last year, the subsidence of which left an unusual amount of vegetable matter to decompose. Thus, a *nidus* was afforded for the transported miasm of the infected ship.

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[1] Blue Book, 1857.

Not proposing to enter into an argument on this subject (although, as above intimated, the debate upon it has been so far only adjourned, not finished), one or two reminders may perhaps not too much anticipate the time when it may be forced again upon the attention of the profession and the public. In the quotations made in the Report before us from the Health Ordinances of New York, nothing is mentioned to show whether persons as well as cargoes are detained at quarantine. But we may take it for granted that they are so, without direct information, as such was certainly the case with vessels detained on account of cholera in 1866; when, on one vessel (the *Virginia*) so held, more deaths occurred from that disease at quarantine than had taken place during the voyage. To say nothing of this danger to life—we might rather say this almost certain condemnation of a number of those on board to death—the presence of the whole population of a vessel must interfere with its thorough purification and disinfection. Every sound reason, therefore, sustains the propriety of the resolution passed, almost unanimously,[1] by the Third National Quarantine and Sanitary Convention, held in New York in 1859. The substance of this was, "that the personal quarantine of cases of yellow fever may be safely abolished, provided that *fomites* of every kind be rigidly restricted."[2] Among those who most strongly urged the passage of this deliberate declaration, on the ground of *experience*, was Dr. E. Harris, the present Sanitary Superintendent of New York, always one of the most enlightened advocates of reform in public hygiene. Farther back, however, in the medical literature of this country, in a communication in this Journal[3] more than forty years ago, Dr. Griffith foreshadowed what, we venture to believe, will be the ultimate conclusion of sanitary science upon the subject. In that paper, after rightly insisting that all vessels from tropical climates, whether from healthy or unhealthy ports, should be obliged to stop at quarantine until thoroughly cleansed and ventilated, Dr. Griffith adds: "*Passengers should be permitted to leave quarantine*, unless when labouring under disease." This is the yet lacking reform. For the place of inspection and purification of vessels, it is undoubtedly of importance that a locality be chosen, as is the case with the quarantine anchorage off Staten Island, at a considerable distance from the city—if possible, remote from any inhabited locality.

Many other topics, dwelt upon at some length in this Report, might detain us, not without interest; as, the Year's Vital Statistics, including those of marriages and births; experimental investigation of the condition of the air in schools, theatres, &c.; the quality of Croton water, and of city milk; the prevention of the dangers of kerosene oil; the gas nuisance, disinfection, and sewerage. We can ask the reader's attention only to very brief remarks upon a few of these subjects. The carefully prepared report of the register clerk, J. Bowne, upon marriages and births, confesses the yet great imperfection of the returns, although they improve somewhat from year to year. Nothing positive can, therefore, be based upon them. We may merely say, in passing, that the figures (pp. 359, 360), as given, rather favour than oppose the theory of Dr. N. Allen, that the foreign-born population of our cities affords a larger proportion of births than the native families.

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[1] On motion of Dr. A. H. Stevens, of New York.

[2] Proceedings, &c. of the Third National Quarantine and Sanitary Commission, New York, 1859.

[3] American Journal of the Medical Sciences, Nov. 1827.

Physiologists as well as sanitarians may find interest in the investigation elaborately made by C. F. Chandler, Ph. D., chemist to the board, into "the sources of unhealthfulness in crowded assemblies" of the metropolis. The most particular attention was given to the comparative amount of *carbonic acid* in the places examined. After comparing, for this purpose, the processes of Brunner, of Regnault, Bunsen, and of De Saussure and Pettenkofer, Dr. Chandler declares his preference for a modification of the method of Regnault. Its essential principle is the absorption of the carbonic acid by caustic potassa, and the measurement of the amount of this gas absorbed, by the rise of a column of water in a graduated tube. By this apparatus a large number of schools and theatres were inspected; some of the former yielding six, seven, or eight times, and some of the latter twelve—even fifteen times (Bowery theatre, *parterre*) the normal proportion of carbonic acid. It is further observed that "when the different portions of a room were at different temperatures, the greater proportion of carbonic acid was most frequently found in the warmest localities." This was the case with the air near the heating apparatus (steam-coils), and "air taken from near the ceiling was always found more highly charged with carbonic acid than that in the lower portions of a room, and the difference was often very marked." (p. 400.) Great care was evidently taken in these experiments; so that it is with hesitation, and not without distrust, that the inquiry suggests itself whether, as the method of measurement was by diminution of volume under absorption of carbonic acid, it was not possible for the change of temperature itself, notwithstanding the precautions taken, to account for a part of this diminution of volume of the air on immersion in water. The results are certainly interesting; and no one can deny their accuracy, fairly, without their repetition under at least as favourable circumstances. "The churches," Dr. Chandler writes, "shall be held sacred from criticism." Sufficient reason for this will not be apparent, to those who have met, in some places of worship, with an atmosphere quite unfit for healthy respiration. Neither were the tenement houses visited for this kind of exact inspection. This may be regretted, in view of the statistics of the subject, as we are told in another part of the volume (p. 88), of sleeping rooms with but 100, and living rooms with but 175 cubic feet of space; the average of nearly eight hundred such houses being, for living rooms, 370, and sleeping rooms 220 cubic feet of air space.

Of the "city milk" of New York the result of the examination is to show that no "injurious" adulteration at present exists in it; but that, on the average, to every three quarts of pure milk there is added one quart of water. Dr. Chandler estimated that this fraudulent addition costs its consumers annually about four millions of dollars.

The "gas nuisance" occupies more than a hundred pages of the Report before us; much of it in fine print. The bulk of this consists of the evidence given at a hearing before a referee of the "Metropolitan Gas Company," whose process was condemned as a nuisance by the Board of Health. We may spare our readers even an abstract of this testimony. From an attentive reading we gather that it shows the "wet lime" process to be the most offensive; the "dry lime" to be attended also with stench from time to time; while the use of hydrated sesquioxide of iron, with sulphate of lime and sawdust (Laming's method), or that of "bog-iron ore," is free from foul odours. Yet it does not appear, from the evidence of Professors Silliman, Rand, and Wurtz, and from that of Professor Odling, previously published, that the odours of gas-works, even with the lime process, are entitled, however disagreeable, to be called serious nuisances in the sanitary sense—that is, deleterious to health.[1]

Passing with some reluctance over the remaining by no means unimportant matter of this volume, we may recur, in conclusion, to the great advantage possessed by the city of New York in the establishment of laws conferring real authority upon its Board of Health—a condition of things dating only from 1866, and indeed matured only after a severe struggle between some purely selfish interests and those of the community at large. Vast as the field of operation is, the Board does not yet congratulate itself upon overcoming nearly all its difficulties. In the words of Assistant-Sanitary Superintendent Stiles (p. 229) :—

> "When the well-paved streets of our city are swept or flushed every morning before daylight, and, at the same time, every dead animal and all ashes, garbage, and filth are removed; when a few large abattoirs take the place of numerous scattered slaughter-houses; when gas companies locate their works far out in the country; when livery-stables empty manure-vaults at night: when factories of all kinds consume their own smoke and fumes, or carry them high into the air; when cow-stables have been banished, and condensed-milk establishments have multiplied among the rich farms around the metropolis; when places of public resort are supplied with special and adequate provision for ventilation; when no tenement houses exist which do not subserve the health of their occupants as well as the gain of their owners; when every house and lot in the city shall be sewered and drained; when free public baths shall be provided; when unwholesome or adulterated food shall not be exposed for sale, for fear of detection and punishment; when all these very practicable and desirable results shall have been obtained, there will still remain abundant demand for watchfulness on the part of the sanitary authorities to hold fast what has been gained, and to improve what is still inadequate and imperfect."

Remembering that the important work of cleaning the streets is not yet under the control of the Board of Health, and that the vexed questions of quarantine and sewage utilization have not yet been fully settled, it is easy to realize the necessity for continued effort, which is thus forcibly set forth. But a large obligation is already due to the members of the New York Metropolitan Board, for using so well their opportunity to apply, and thus most effectually to advance, enlightened sanitary science.

H. H.

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[1] The suggestion that the air of gas-works is preventive of epidemic cholera cannot be fully verified. In 1849 the writer of this review attended, in an attack of well-marked cholera, a man employed as one of the hands at the Philadelphia gas-works, where the lime process is used.

ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

Art. XXI.—*Transactions of the Obstetrical Society of London.* Vol. XI. For the year 1869. 8vo., pp. l., 345. London, 1870.

The present volume of this excellent series does not yield to any preceding one in value or in interest. There are about the usual number of contributions, illustrated by well-executed plates and wood-cuts, three of the former being coloured. In giving a critical analysis of its contents, we shall, for the convenience of our readers, group together kindred subjects and cases, without reference to their original arrangement.

Delivery by the Cephalotribe.—Dr. J. Braxton Hicks exhibited a fœtus delivered by this instrument. The head was firmly ossified, and the mother's pelvis small, with a conjugate diameter of the brim not over three inches. After a vigorous labour of ten hours, without any engagement of the head, version was attempted, but failed through the too firm contraction of the womb. The long forceps was next tried, but in vain. Without removing them, the head was perforated and traction again resumed without result. The cephalotribe was therefore substituted. Upon bringing the screw home, the slight resistance showed that the base of the skull had not been gripped; the blades were thereupon reapplied, and then the resistance was much increased. When the blades were approximated traction very readily delivered the head. The instrument had acted in the oblique diameter of the head, one blade passing below the orbital ridge, the other on the opposite side of the occipital bone. The bones of the vault and the frontal bone had been crushed in, but the integrity of the scalp was so preserved, that no spicula could be felt.

Dr. Barnes exhibited the head of a child delivered by cephalotripsy, with the instrument (Hicks') attached. The case was that of a wretchedly deformed rickety creature, aged 19; whose conjugate diameter was estimated from 1 25″ to 1.50″, and the space on either side of the promontory about the same. Although she was in the *last* week of her first pregnancy, Dr. Barnes determined to act at once, and passed a bougie into the uterus on the afternoon of September 13th. Next day at 3 P. M. there was some uterine action; at 6 P. M. the medium dilating bag was applied, and in ten minutes room enough for work was gained. After perforation, the cephalotribe was applied three different times. Some pieces of the cranial vault were removed by the craniotomy forceps, and then the head being well crushed was without much difficulty extracted by the cephalotribe. The whole operation lasted one hour. The mother did well, although a miserably feeble creature. Dr. B. believed the pelvis in this case was the smallest in which cephalotripsy had been successfully performed in England. Dr. Hicks' instrument worked admirably, but he thought a less curve would be better, and thereupon exhibited a cast of a head, grasped by the straight instrument of Dr. Kidd, of Dublin.

Dr. G. Hewitt remarked that one practical deduction, drawn from Dr. Barnes' case, was the advisability of giving the cephalotribe very little curve. It was to be recollected that, in most cases of pelvic deformity, the pelvis was not only narrow but shallow, and a nearly straight instrument would be generally applicable.

Dr. Hicks observed that his late instruments were not so curved as the early examples. As to the objection, that the concavity of the curved blade would sometimes look backward, in shifting the position of the child's head, he thought that if the blades were always applied in the transverse diameter of the pelvis, a quarter turn would bring this concavity to one or the other side, so that the blades would be virtually straight so far as regards their antero-posterior aspect.

Dr. J. **Matthews Duncan** presented a specimen of his cephalotribe, which is modelled on the heavy, long-handled French form. He found fault with the English ones, whose blades are too flexible, and, when closed, are too far apart. He thought that accoucheurs, who wish to discover what resistance can be gained in difficult labour from thorough cephalotripsy, would have to use his instrument, or the French one, or some other equally efficient.

Dr. J. **Braxton Hicks** read a paper commenting upon the above instrument. In it he contends that it is needless to have a cephalotribe so powerful as to crush in the base of the skull, for as the base measures only one and a half inches in its vertical height—when the vault is crushed in—by bringing the head down edgewise, or face first, we shall have only that small diameter to oppose to the conjugate diameter of the pelvis. He objects to the French blades as not being sufficiently incurved at the tips to be used as tractors, and shows how important it is to use them in that manner. For if they be removed in order to allow the uterus to expel the head, or in order to resort to traction by the crochet or by the craniotomy forceps, the crushed head begins to expand to a considerable degree; and this after-expansion is such that all advantages of the compression are lost. Hence an instrument, with incurved blades, capable of less approximation, and adapted as a tractor, is more efficient, as proved by his own and Dr. Barnes' successful cases, related above. He maintains further, that it is rarely possible, with the cephalotribe, to seize the head in its transverse diameter; and that the reduction of the base in other diameters, by crushing, is a matter of great difficulty. That in the majority of cases, when crushing the base is aimed at, it will be found that the base tilts under pressure, thus escaping the lateral crushing; and that then the vault is pressed in on the base, which effects a reduction practically sufficient for delivery when the head is brought down edgewise. Finally that the force, required for the crushing in of the vault, is not so great as that required for the lateral crushing in of the face and base, which is unnecessary.

Uterine Polypus Complicating Labour.—Dr. **Gervis** exhibited a polypus uteri taken from a patient, whose labour had to be terminated by craniotomy. It was of large size and had extensive attachments to the cervix and vaginal walls. On the fifth day after confinement the tumour was removed by the simple wire écraseur, but the patient succumbed, several days afterwards, to an attack of peritonitis. During the first four months of gestation the patient had profuse hemorrhages.

Fibroid Polypus attached to the Fundus Uteri successfully removed.—Dr. D. L. **Roberts** exhibited this specimen with the following history. The patient—aged 35—had enjoyed good health until five years ago, when she had menorrhagia and irregular metrorrhagia, supplemented later by muco-purulent discharges. She complained of constant sacral pain, and of lumbar pain after any exertion. Defecation normal; but the catheter was often required to empty the bladder. She had cramp in the right leg, and experienced great pain in moving or flexing this limb; which were her most irksome symptoms. Dyspnœa now setting in, together with copious flooding and excessive muco-purulent discharge, she was admitted into St. Mary's Hospital. Dr. R. discovered a large fibroid polypus, attached by a short thick pedicle to the fundus. Under chloroform several ineffectual efforts were made to draw down the growth to incise it. The chain of an écraseur was with difficulty now passed around the pedicle, but it snapped, and a stronger one was applied, which soon cut its way through. Owing to its peculiar shape and size much difficulty was experienced in removing the tumour, but this was ultimately accomplished by the midwifery forceps. The polypus weighed 24½ oz., was six inches long and twelve in circumference. It was bilobular, with the larger lobule situated on the right side, and the smaller to the left side of the pelvis. The pressure of the large end of the polypus upon the psoas and iliacus muscles of the right side, explained the cramp and pain in the corresponding limb. The vagina was plugged with lint soaked in a solution of the perchloride of iron, and the legs bandaged together. The convalescence was perfect.

Dr. MEADOWS also exhibited a large fibroid polypus removed by the single wire écraseur. Ten days previously this tumour had been completely intra-uterine, and the os closed over it. The dilating bags had not merely induced dilatation of the os, but sufficient uterine action to cause the extrusion of the tumour. In his opinion they were more efficient than sponge- or other tents.

Rapid Growth of an Extra-Uterine Tumour.—Mr. CHAMBERS exhibited this specimen, which illustrated, in the first place, the three divisions into which these growths are divided—submucous, intra-mural, and sub-peritoneal; and, in the second place, the difference between the fibroid proper, the white fibroid, and the fleshy or red fibroid. Aged fifty, the lady had never been pregnant; two years ago her catamenia increased in duration from five to twenty days. A year ago Mr. C. passed up a sound six inches, found the fundus uteri midway between the pubis and umbilicus, diagnosticated an intra-uterine tumour, and a second tumour, as large as the first, attached to the fundus, freely movable in the abdominal cavity. After this examination she rapidly enlarged, became anasarcous, suffered from dyspnœa, from great abdominal pains, and died with gangrenous patches over each leg. An autopsy revealed a very large white fibroid, occupying the abdominal cavity, closely adherent to the abdominal wall over its whole extent, as well as to the bladder and descending colon, and attached to the fundus uteri by a short thick pedicle. It was in a state of degeneration and contained ten or twelve pints of pus. The special points of interest are the rapid growth of the extra-uterine fibroid, simulating ovarian tumour; and its malignant character, which is generally denied.

Fibroid Degeneration of Uterus, with Sub-Peritoneal and Interstitial Tumours in a State of Degeneration.—Dr. A. W. EDIS presented this specimen, with the following history. Patient aged fifty; married twenty years without children. For ten years has lost blood every day from the vagina, and ultimately sought advice for bearing-down pains, dyspnœa, and difficulty in defecation. In June, 1867, by pressing up the tumour above the pelvic brim, these symptoms were relieved. Nine months after this, the same process had to be repeated on account of similar pelvic obstruction. Slight peritonitis ensued, which yielded to rest and opium. Her health now began to give way; frequent vomitings, dysuria, cramps, œdema of left leg, and muco-purulent vaginal discharge set in; and she died quite suddenly Dec. 1868. The uterus was found to be of the size of a large cocoa-nut; on the posterior wall of the fundus was a sub-peritoneal fibroid tumour in a state of calcareous degeneration; within the wall was another in a state of sloughing and disintegration; whilst the whole interior of the uterine cavity was in a state of slough, the surface being covered by a thick viscid muco-purulent secretion. The uterine walls were at least an inch thick.

Fibroid Outgrowth from the Fundus Uteri.—Mr. T. SPENCER WELLS presented the specimen, weighing 34 lbs. 10 oz., which he had removed from a single woman, aged 36. Eleven years ago half of her lower jaw had been removed on account of a fibrous tumour. An abdominal tumour was discovered five years ago, which slowly enlarged, but during the last six months it had rapidly increased. The tumour did not feel so hard as a fibroid, but, although pronounced ovarian, no cyst was found large enough to warrant tapping. There was no vascular murmur, and it seemed to move independently of the uterus of normal size. When the tumour was exposed Mr. W. was surprised to find that it was not ovarian, but that it sprang from the posterior surface of the fundus uteri. The pedicle was secured temporarily by a clamp, and the tumour cut away. Some bleeding points, where adhesions had been separated, were secured by an acupressure needle, and the clamp was removed. Bleeding vessels were secured by hair-lip pins and twisted sutures, which also served to fix the bleeding surface to the abdominal wall by transfixion. At a subsequent meeting Mr. W. exhibited the uterus and ovaries of this patient, which were healthy. She died the third day after the operation from fibrinous deposits in the right side of the heart. Superfibrination of the blood had been feared from the first, on account of the rapid rise of the temperature of the body, from 98.4° to 101°, within twelve hours, and then rapidly upwards to 105.8°. This was accompanied by hurried breathing, rapid pulse, and scanty urine, charged with urates and pigment. The first sound of the heart became feeble more than twenty-four hours before death, and was inaudible for fully twelve hours. In all operations when peritonitis might be expected Mr. Wells feared its direct effects less than its tendency to cause excess of fibrin in the blood, and separation of the fibrin in the heart. He further stated that this condition of superfibrination was epidemic, and then prevailed croup, diphtheria, and other diseases characterized by fibrinous exudation. Dr. Routh said that this tendency to fibrinous deposits was perhaps remediable; diphtheria and rheumatism being curable diseases. The latter was amenable to ammonia and to an alkaline treatment. In peritonitis, accompanied with flocculent deposits, the fluid was often acid, showing that the blood was less alkaline than normal, and pointing to the use of the alkalies, which might be useful in preventing ante-mortem clots.

Case of Puerperal Fever cured by the Injection of Ammonia into the Veins. By Dr. W. Tyler Smith.—A full abstract of this case has been given in the No. of this Journal for October, 1869, p. 563.

Dr. Barnes, in commenting on this case, adverted to the practice of saline injections in cholera, and stated as his opinion that the injection of salines and transfusion ought to be largely extended in puerperal fever, convulsions, and obstinate vomiting. He doubted whether the fluid used by Dr. Smith was the best, and should prefer a fluid like Dr. Little's, of a specific gravity similar to that of blood, adding a little ammonia and alcohol, so that it should not be too concentrated.

On the Complication of Pregnancy with Ovarian Disease. By Mr. T. Spencer Wells.—An abstract of this paper has been already given in the No. of this journal for October, 1869, p. 562.

Dr. J. Braxton Hicks stated, as the result of his experience, that in no case had he seen any evil consequences arise, where ovarian disease coexisted with pregnancy. He gives the details of seven examples in which living children were born at term, without any special difficulty; and only one in which he was obliged to resort to tapping previous to delivery. A very interesting discussion by the members follows these conflicting remarks of Mr. Wells and Dr. Hicks.

Mr. R. T. Warn also gives a history of a case of labour complicated with ovarian disease. The patient first noticed a swelling two years previously; during pregnancy she became very much enlarged, but was not tapped. Labour set in prematurely; pains of very little power; after ten hours the os was dilated by the water bags and delivery effected by version. The child was small and lived only six hours. The next day the patient was seized with a fit of shivering, accompanied by pain and vomiting; the breathing became hurried, pulse feeble and very rapid, and she died that night, forty hours after delivery. An autopsy showed a hole in the cyst as large as a quarter, and the cavity of the abdomen filled with a thick oily-looking fluid of a chocolate colour. Mr. W. thought that the cyst had not ruptured during labour, but at the time when shivering and vomiting took place.

Dr. Routh had seen two cases of this kind, in both of which two common facts were noticed: 1st. Both the children were premature, and not viable. 2d. The ovarian growth was rapidly excited by the concurrent pregnancy. If this were invariably the case, the treatment clearly indicated was induction of premature labour.

Dr. Barnes had seen many such cases, and he thought it generally best to induce premature labour, for nature would rarely tolerate the double burden of a growing uterus and a growing ovarian tumour. Whilst pregnancy went on, there was no security against some formidable catastrophe; such as the bursting of the cyst, or the twisting of the pedicle. Finally, since spontaneous premature labour often occurred, followed by immediate relief, we should accept this indication as a guide to practice.

Other analogous cases of great practical interest were related at this meeting, and discussed by the members.

Cases of Extra-Uterine Pregnancy.—Dr. A. Brown was called in haste to see a woman who had just died. She was between four and five months advanced in her third pregnancy. On one or two occasions she had complained of pain in her side, and of faintness after exertion. She was discovered in the water-closet in a fainting condition; rallied under stimulants, and complained of abdominal pains, which she attributed to indigestible food. Anodynes relieved her and brought on sleep, but she soon awoke with the same symptoms unabated, and died thirteen hours after the first attack. The autopsy revealed a pregnancy of the right Fallopian tube, the cyst had burst and the pelvis was full of liquid blood.

Mr. J. L. WORSHIP relates the next case. The patient, aged 29, was in her second pregnancy; had last menstruated Aug. 28th. On Oct. 6th Mr. W. was called to see her, and found her suffering from sickness, and pain in the lower part of the abdomen, with a sensation of great distension, attended by a great deal of pain over the liver and under the right shoulder blade. The desire to pass water was frequent; vagina hot, and os uteri exquisitely tender. Diagnosis, uterine and hepatic congestion. In spite of treatment, her symptoms daily grew worse, and she died rather suddenly on the 29th from what was supposed to be rupture of a pelvic abscess. On *post-mortem* examination the right Fallopian tube was found occupied by a fœtus; the cyst had ruptured, and the abdomen was full of clotted blood. The uterus was lined with a deciduous membrane.

The third case with accompanying specimen is reported by Dr. W. MARTYN. Patient aged thirty-four; confined fifteen years previously; menstruated in the beginning of July. Complained of frequent sickness, general discomfort, distressing pains in the region of the stomach and pelvis, and severe neuralgic pains in the right arm, which neither baths nor opiates relieved. Mammæ gave ample evidence of pregnancy, and in due time quickening took place, but Dr. M. had never seen so much distress in a natural pregnancy.

Feb. 4. He was summoned to see her, as her pains were so severe that she could not sleep. Belly not so prominent in the mesial line as in ordinary pregnancy; fœtal pulsations unusually distinct; os soft and large, but not dilating; uterus enlarged; a diagnosis was made of ordinary pregnancy. Next day, while moving about the room to relieve the great distress in her belly, she suddenly fainted away, was lifted into bed, gasped a few times and died.

At the *post-mortem*, a well-nourished child was found loose in the cavity of the abdomen; on tracing the cord it was seen to enter a rent in an enormous cyst, but whether ovarian or tubal was uncertain. The uterus was much enlarged, but exhibited no trace of deciduous membrane. A committee appointed by the Society to examine the specimen, inclined to the opinion that it was a pregnancy of the left ovary; and that the interior of the womb presented traces of a decidua which had passed away unobserved.

Drs. ROUTH and PLAYFAIR both deemed it justifiable in such cases to perform gastrotomy, since death was almost sure to occur in the course of pregnancy, but that the difficulty of the diagnosis would always stand in the way of attempting this operation.

Dr. HEWITT observed that, in most cases of extra-uterine pregnancy, the uterus enlarges, and the os participates in these changes, so that the diagnosis was much embarrassed; indeed he could recollect only one or two instances in which the case had been diagnosticated during life.

Dr. MARTYN remarked that in his case the uterine sound would have cleared up all doubt, but that the possibility of an intra-uterine pregnancy would always prevent the use of this method of diagnosis.

Observations and Remarks on Cases of Twins.—Dr. BRUNTON reports the following results of his investigations. In 36 cases of twins, 25 were of like sexes with two amniotic sacs. Out of 11 cases of different sexes, in 10 there existed one sac, and in 1 two sacs. In 15 cases the placentæ were noted as follows: In 5 of the cases of like sexes in which two sacs coexisted, the placentæ were either double-battledore, or there were two distinct ones. In 4 of the similar cases the placenta was single. Of the remaining 6 cases in which the existence of two children of opposite sex was observed with one sac, 4 had one placenta and 1 two; while in the odd case, where male and female existed with two sacs, one placenta was found. His conclusions are that if a male ovum comes down from each ovary at one and the same time we have an explanation of the existence of *twin males* and *two sacs;* so if female ova descend. But, if two ova come down from the same ovary, we have twins of opposite sexes, and one sac of membranes; for he had found no case of twins of the same sex in one bag of membranes.

Dr. Playfair objected to this that conjoined twins were never of different sexes, which was incompatible with Dr. B.'s theory; because, according to it, conjoined twins should always be of opposite sexes.

Dr. Brunton differed in this opinion, since he thought in those cases a male ovum at the same time came down from each Fallopian tube and coalesced.

Case of Conjoined Twins.—Dr. J. F. Rogers was called in to attend a case of labour, and found a right foot presenting. On account of insufficient expulsive pains, ergot was given, which powerfully increased uterine action, but there was no descent of the fœtus, not even where firm traction was made on the limb. On passing up the hand into the vagina, another *right* foot was discovered, which presented its toes to the symphysis pubis, whilst the toes of the first looked towards the coccyx. Failing to return this foot, Dr. R. brought down a third, and then, by using powerful traction, dragged down the nates and loins of one child so low that he could feel the band by which the children were united. Some difficulty was experienced in extracting the arms and shoulders. No farther traction was now made, but the bodies of the children were drawn up well over the abdomen, so that the posterior head should engage and pass out first. By this means there was no locking of the two heads at the brim, and delivery was readily accomplished. The twins, *both females*, were still and weighed eight pounds. All the external organs were perfect; the uniting band, composed of "cartilage skin," extended from the top of the sternum to the navel, into which one common cord entered. There was but one placenta, and that large and heavy. The perineum was but slightly lacerated. There was a rudimentary cord, two inches long, about one inch below the navel, which seemed to indicate that they were original twin conceptions, but that the membranes separating them being imperfect, the bodies were brought into close contact with each other, and coalesced, by reason of the strong formative power existing at that period of uterine life.

Dr. Playfair remarked that this case was an instructive one, as showing that, in double monsters, a presentation by the feet was most favourable. For not only is a correct diagnosis more easily made, but by lifting up the body well over the mother's abdomen, the sacral head engages first. Hence, if the head presents, and we can determine the nature of the case, version should be resorted to.

Allusion is made in this and in the preceding case to *coalescence* as the element necessary to the production of conjoined twins; strictly speaking, however, they are neither *conjoined* nor *united* twins, but *double monsters.* It is now a well-established fact that they are never caused by a fusion of twin embryos, brought into contact with each other through the accidental absence or absorption of the two chorions. Leading teratologists now hold that every double monster is the product of a *single* ovum, whose vitelline membrane contains two primitive germinal traces instead of one. For further facts about this interesting subject we refer the reader to the able articles on Diploteratology, by Dr. J. G. Fisher, in the *Transactions of the New York State Medical Society* for the years 1865, 1866, 1867, 1868.

Case of Triplets, by Dr. Martyn.—Labour set in almost one month before term. The first child, a male, presented by the head; the second, a female, by the breech; and the third, a male, by the head. Each child had separate membranes. The males shared a joint placenta, but the female had its own. All the children died within twenty-four hours.

Hereditary Twin-Bearing Family.—Dr. Curgenven attended a lady who was delivered of twins for the fourth time; she had severe flooding and barely escaped with her life. This was her sixteenth conception during a married life of sixteen years. Her mother had twins *once;* her aunt *once*, and her great-grandmother *twice.*

Twins, together with Secundines from a Case of Hydrops Amnii.—This example of a rare disease is reported by Mr. WM. HODGSON, although the patient was under the care of Dr. Hewitt. She has had ten children and five miscarriages, and was nearly seven months advanced in pregnancy. Has increased rapidly in size during the last month, her legs were greatly swollen, and the abdomen measured fifty-four inches in circumference. Her respiration hurried and oppressed; skin hot and dry; tongue covered with white fur, and very œdematous, pitting on pressure. Dr. Hewitt diagnosticated hydrops amnii, and proposed, after feeding up the patient for two days, to make a minute puncture in the membranes, so as to allow the uterus time to contract as it was emptying. The membranes, however, ruptured spontaneously, drenching the bed and flooding the ward. Next day labour-pains set in and a bag of membranes presented. This was ruptured; about twelve ounces of fluid escaped and also a dead fœtus, presenting by the feet. In about ten minutes more another fœtus was born by the vertex; which lived only a short time. The first fœtus was shrivelled up, and had been dead for some time; the second was well nourished, and weighed twice as much as the first. Dr. Hewitt attributed the sudden increase in the size of the mother to the death of the fœtus, and probably by the laws of exosmosis and endosmosis. Seven examples of this rare disease are quoted from Dr. R. Lee, and three from Dr. David W. Hall; all of them presenting very much the same symptoms.

Dr. RASCH also gives a history of a case of *Hydrops Ammii*, in which one of the twins had died from twisting of the cord close to the umbilicus. In this instance, however, it was the sac of the dead fœtus which was considerably larger than that of the living fœtus.

Rupture of the Uterus; Decomposition of the Fœtus; Blood Poisoning; Recovery.—Under this title is a paper by Dr. ROBERT GREENHALGH, describing the following interesting case: A woman, seven months advanced in her sixteenth pregnancy, while lifting a heavy weight, was suddenly seized with an agonizing pain in the belly, "as if something had given way," followed by a "show." She remained in a collapsed state for several hours, but rallied under the free exhibition of brandy and opium. For two days she felt very weak, when a chill, followed by a burning fever, occurred. The pain, which had lulled, again returned with increased violence, and so acute that she could not bear the weight of the clothes. The attending physician pronounced the attack one of acute peritonitis; bled her twice, and gave calomel, opium, and salines, by which the pain and febrile symptoms were subdued. Her breasts now enlarged and became tender. During the succeeding fortnight she somewhat improved, but repeated vomitings, with typhoid symptoms, ensued. Dr. Greenhalgh was now called in; he found her lying on her back, with her knees drawn up; pulse 140; tongue dry and brown; skin hot and dusky; urine scant and highly coloured; stools frequent and offensive; abdomen greatly distended; vagina hot, dry, and much elongated; cervix uteri soft and nearly obliterated; os uteri patulous. No fœtal heart sounds or uterine souffle could be heard, and fœtal movements had not been felt since the accident. Uterine tumour well defined, dull in every part, except over the umbilicus, where it was resonant. The following diagnosis was made: that a rupture of the uterus had taken place, followed by peritonitis; that the fœtus had perished and become decomposed, giving rise to gaseous accumulation in the uterus, and blood poisoning. The membranes were therefore ruptured, giving exit to a large quantity of fetid gas, and to some turbid stinking liquor amnii, followed in ten hours by the birth of a very much decomposed fœtus. The vomiting at once ceased; the fever abated under the influence of bark, iron, ammonia, stimulants, and good diet, and the patient got well in six weeks' time.

The next case of *Ruptured Uterus* is related by Dr. J. T. MITCHELL. The subject, aged 42, had been attended by him in six previous labours. Her pelvis was originally small, but it had suffered steadily increasing reduction by *mollities ossium*, so that each labour grew more and more difficult—the last one requiring very energetic efforts with the forceps. Her physician had determined to induce premature labour in the eighth month; but, a few days before the time appointed for this operation, she was frightfully alarmed at a terrific crash of lightning. She instantly felt an agonizing pain in the pelvic region, and fainted away. On recovery to consciousness, there remained a dull, heavy pain in the same place, which was relieved by anodynes. After two days uterine pains set in, accompanied with hemorrhage. The os uteri was found dilated, and a small portion of the placenta presenting. Upon introducing the hand, a rent was discovered three inches above the os. Version was resorted to, and a still child delivered. As a knee lay in juxtaposition to the rent, probably the uterus had become torn by contracting violently upon it during the spasm from fright. Peritonitis soon set in, and the woman died seven days after delivery.

Dr. Hall Davis, commenting on this case, stated as his experience that, excluding all cases of external violence, rupture of the uterus generally occurred in multiparæ, in whom degeneration of the uterine muscular fibres had taken place. In only one instance had he met with rupture in a primipara; but her pelvis was deformed by rickets, and ergot had been given by a midwife. In this case no structural degeneration of muscular fibre could be discovered.

Peritoneal Adhesions of the Gravid Uterus a Cause of Post-Partum Hemorrhage.—In a very ingenious paper upon this subject, Dr. Graily Hewitt contends that the existence of peritoneal adhesions, binding the fundus of the gravid uterus to the upper portions of the abdominal walls, forcibly keeps it in a distended condition after the expulsion of the child, and prevents that contraction which is so essential, both to the casting off of the placenta and to the prevention of post-partum hemorrhage. He believes that these adhesions are often responsible for so called *atony* or *inertia of the uterus*, *irregular* and *hour-glass contractions*, &c., to say nothing of *adherent placenta.* This opinion he illustrates by two diagrams, and by the history of three cases of rapid flooding, two of which were fatal. In the post-mortem examination of one of the cases the peritoneal surface of the uterus was studded with reticulated bands and strings of a tough fibrous nature. The ends of many of these strings were quite free, as if they had been attached to some fixed point, and had been broken away, proving that these bands had connected the uterus pretty firmly with the abdominal parietes up to the time of labour, and that, when the uterus descended, they were at first stretched and finally broken across. It was evident that, if these adhesions were too strong to give way, the uterus might remain contracted for half an hour, and then re-expand by being pulled back to the top of the abdomen. The inference then is to follow down the uterus, after the expulsion of the child, and to see that it is firmly and permanently contracted. In the discussion which followed the reading of this paper, most of the speakers took ground against the theory advanced by Dr. Hewitt, although a few admitted that the tendency to hemorrhage was greater after pelvic abscess and peritonitis. Mr. T. Spencer Wells said that he had noted upwards of twenty cases of childbirth after ovariotomy, and yet the firm adhesions, resulting usually from this operation, led to no unusual difficulty.

The Treatment of Hemorrhage after Labour.—In quite a long article upon this subject, Dr. Robert Barnes revives the use of intra-uterine injections of the liquor ferri perchloridi. As usual with advocates of a new remedy, he finds some fault with each one of the old prescribed methods for arresting this kind of hemorrhage. *Ergot* "too often fails;" *cold applications* "lead to pleurisy, peritonitis, or broncho-pneumonia;" *kneading the uterus* "is liable to cause metritis;" *compression of the abdominal aorta* is, at best, "a momentary resource;" *plugging* "cannot be trusted;" *faradisation* "was often intensely distressing to the patient;" *turning out the clots* was very good in its way, but did not answer the purpose. The mode of using this styptic is as follows: First, clear the uterus of placental remains and clots, then gently inject the ordinary liq. ferri perchloridi (Br. Ph.) undiluted; or the liq.. ferri perchloridi fortior (Br. Ph.) in the proportion of one part to four of water. All air must be scrupulously expelled from the syringe before using it. In hemorrhage after abortions he prefers to *swab out* the uterine cavity with this solution, lest, on account of an imperfectly dilated os uteri preventing the free return of the injected fluid, any bubbles of air should be forced into the circulation. In the discussion which followed the reading of this paper, so numerous were the members who had used this remedy "for many years" that Dr. B. "was surprised," and said very little "with reference to priority."

Hemorrhage Fatal in Forty Minutes.—This remarkable case is instructive on many points, and shows with what care *post-mortems* should be conducted. A lady eight months advanced in her sixteenth pregnancy, whilst engaged in hanging her bed-curtains, was standing with one foot on a chair and the other on the side of the bed. The chair slipped and she fell on her nates—an enormous flow of blood instantly commenced, and continued until she was dead. Mr. Houghton, who lived not more than a five minutes' walk from her house, was immediately called in, but found her dead. The *post-mortem* showed a placenta normally attached, the membranes entire, and not a trace of coagulum, or spot of blood on the mouth of the vessels, or in the uterus itself. A plug of mucus in the os uteri was not blood-stained; there was no clot or fluid blood in the vagina; indeed the only trace of blood was found in the vulva, slightly gluing the labia together. There were no marks of bruises on the abdomen and thighs. Mr. H. removed the entire uterus and sent the specimen to Dr. Greenhalgh, as a case of obscure uterine hemorrhage. The latter, however, in reply, suggested the existence and rupture of varicose veins, either of the thigh or of the vulva. Upon inquiry, Mr. H. ascertained that the lady had in fact suffered from an aggravated form of this disease; and he now feels satisfied that this was the source of the hemorrhage, but that the seat of the rupture had escaped his notice, as the idea of varices had not occurred to him.

Dr. Hewitt stated that after delivery he had seen considerable hemorrhage from a varix, which had been torn during labour, and the source of the loss was at first by no means obvious.

Messrs. Spencer Wells and Worship referred to cases in which they had seen death speedily follow the rupture of a varix in the leg. In one case death took place within five minutes.

On Mechanical Support during Labour.—Dr. William Woodward opens up this subject with the courtly phrase, that "there is doubtless a marked difference between parturition among savage tribes, and that which obtains in the higher race." Stays and "tight-lacing, late hours, and concomitant evils" play the very mischief with the latter. Hence, of course it requires an "artificial assistance" which offended nature refuses to afford, but which Dr. W., in the inscrutable ways of Providence, has been permitted to discover. This "artificial assistance" can actually be compressed within the narrow limits of a single mechanical appliance; characterized by positively only one "well cushioned pad for the back, and a belt passing round the abdomen," together with sundry ingenious devices of strings and straps, all well illustrated by a woodcut of high order. We advise our readers to study it well, for after the application of this "Obstetrical Back Supporter," all that the physician and monthly nurse need do is to sit still, twirl their thumbs, and bless this labour-saving machine. In the language of the fortunate discoverer, "It encircles the abdominal muscle," "gives a feeling of general support to the parturient woman," "insures generally the due contraction of the uterus," "lessens the danger of flooding," "rectifies malpositions," and "gives sufficient support to the back." "It is very portable and inexpensive," delivers the placenta, "takes away half the pain," "terminates labour shortly after its application," and "*received a notice in the Lancet.*" One who knows, a lady of the "higher race" we presume, says "it helped me very much indeed;" another, "I could not have gone through my labour without it;" indeed, once on, it appears to do everything but cut the cord and dress the infant. We breathe the prayer, that this good doctor's life be spared until he devises some other appliance, evidently within the resources of his ingenuity, which shall not only not discomfit the printer by its name, but shall "take away [the other] half of the pain."

Dr. Protheroe Smith also gives the diagram of an instrument constructed for the same purpose; but we pass it by, as it presents *only* "in its pubic, sacral, lumbar, costal, and sternal pads and springs, all the different *points d'appui* from which a properly adjusted bandage is made to stimulate the action of the lumbo-abdominal muscle," and has never had "a notice in the *Lancet*."

Report of the Infant Mortality Committee.—A series of questions upon the cause of infant mortality was sent to each Fellow, and this report is an analysis of the replies thus elicited. The proportion of births attended by midwives appears to be very great in Ireland, less in Scotland, and quite small in England. The ordinary treatment of the umbilical cord is generally carried out; the only variety being in the length of the cord allowed to remain, this ranging from one to three inches. In many portions of the United Kingdom the midwives are expected to visit the patient every day until the cord drops off, and they therefore sometimes pull it off prematurely in order to bring their attendance to a close. The infant's binder is universally used, but one physician thinks "that it is often too tight, so as not infrequently to induce convulsions." In country districts some kind of aperient is given to the newly born infant; but this custom is not so universal in the larger cities. Among the married poor suckling is the rule, protracted even to two years, in order to prevent too rapid a recurrence of pregnancy; but a large proportion of women in London have a deficient secretion of milk. Illegitimate children are rarely suckled, but brought up on farinaceous food, and about 80 per cent. perish. The sleeping of infants is almost universally encouraged by cordials and opiates, or by allowing them to remain in their cradles, sucking away at the bottle long after their stomachs are full. The amount of dosing is fearful; in one small town of six thousand inhabitants one chemist sells annually twenty-five gallons of Godfrey's cordial, and another six imperial pints weekly, not including paregoric, Steedman's powders, syrup of poppies, etc. The morals of the United Kingdom do not appear to great advantage; "in many parts of the country it is the *invariable* custom for the marriage ceremony not to be sought until advancing pregnancy renders it desirable; and it is often postponed until after confinement, as by the infant perchance being stillborn the chief reason for marriage is removed;" and illegitimacy is regarded without shame. The poor rarely call in a physician unless the child is seriously ill, and this is done to procure his certificate in case of death. The last topic of the report treats upon the means of preventing so great a mortality. With reference to food, all the Fellows agree that children should be suckled, and if that be impracticable, to feed them on milk and water up to the fourth month, and on no farinaceous food until after that time. With reference to other means, the suggestions of the Fellows vary greatly, and incline more to the enactment or changes of laws.

Teething.—In a sensible, but rather partisan paper, Dr. Selby Norton contends that teething is not a cause of disease in infants, and that the principal fatal diseases attributed to it, such as diarrhœa, convulsions, and bronchitis, "are evidences of, and entirely due to, the universal but unphysiological practice of feeding infants on starch foods." The remedy, therefore, for those diseases is milk and warm water.

In the discussion which followed, and which includes both this and the preceding paper, many interesting statements are made.

Dr. Ballard fully agrees with the author, and observes "that to attribute all the deaths and illnesses, which are usually referred to teething, to a natural process of growth, is actually casting a reproach on the beneficence of the Almighty." He very sensibly suggests "that the apparatus from which the child is fed artificially should be so constructed as to permit the food to be obtained *when the child sucks, and not to yield any when it does not suck.*"

Dr. Brunton draws his lessons from nature. When the child's mouth is toothless its office is to suck the breast; but when the first teeth come, and the child begins to bite its mother's nipple, then was the time to give artificial food, such as corn-flour, with milk, etc. With infants brought up by hand he gives milk and water until the teeth appear.

Dr. Routh said opinions widely differ as to the feeding of infants upon starchy food, and yet on no point was there more evidence than against its use. "1st. The assimilation of starch depended on its conversion into sugar by the salivary glands; and yet infants before the third month secreted no saliva. 2d. Pathological researches on infants dying after the use of starchy food proved it passed through the alimentary canal *unchanged*. 3d. The alimentary canal of a baby was that of a *carnivorous* animal—a short membranous tubular canal, and comparative short length of intestines. 4th. The very food supplied to purely herbivorous animals recently born was *animal*. *A fortiori*, should it be so with omnivorous animals, *ergo*, starchy food should not be given to infants. The moment teeth appeared, *pari passu* anatomical and physiological changes occurred in the infant's body—the stomach assumed more the character of an omnivorous animal, and became bent on itself, the intestinal canal lengthened, and the salivary glands secreted copiously; hence the dribbling." That for artificial food for infants the best was the milk from one cow, with half to one ounce of lime-water, and a teaspoonful of sugar of milk to every half pint of milk, with one-third of water. The idea that it was wrong to feed the child on the mother's milk, and at the same time to give it cow's milk, was fallacious, and his experience had proved that, in all cases, where it was clear beforehand that the mother would lose her milk, it was best to begin early with cow's milk.

Hydronephrosis of the Fœtal Kidneys; Impeding Labour.—This case is reported by Dr. Madge. A primipara had been in ill health from some renal affection, and fell into premature labour, with a breech presentation. The labour was tedious, the delivery being finally effected by making traction with a silk handkerchief passed around the thigh. The child was still. The difficulty in delivery arose from the enormous distension of the abdomen, caused by the enlargement of the kidneys, which were of the size and shape of a bullock's. They were transparent like a bladder; all the secreting structure had disappeared; nothing but the septa, between the lobules, could be seen; each lobule was converted into a sero-cystic tumour. Upon examination the fluid contained in these sacs coagulated under heat; exhibited no trace of urates; had a specific gravity of 1010, and was loaded with the debris of kidney tissue.

Abscess of Female Urethra, by Dr. Cory.—The patient, of a full habit, experienced pain in making water, with a feeling of fulness at the lower part of her body; had occasional retching, and a desire for the recumbent posture. These symptoms increased in severity for three days, when the doctor was called in. He found her suffering severe vaginal pain; face flushed, countenance anxious, pulse jerking, tongue furred, continual retching, slight delirium, constant micturition, with tenesmic efforts. Urethra of large size, feeling like a great roll, and filling up the vagina; very tender to the touch, whilst the meatus urinarius was buried out of sight in the swollen parts. Poultices and opiates relieved her; and next day, during a violent fit of vomiting, the abscess burst in front of the meatus, giving her immediate relief.

Puerperal Convulsions; Illustrated by Cases, by Dr. J. Hall Davis.—This is the longest contribution to the volume of Transactions; and, although not characterized by original thought, is instructive, from the history of thirty-five cases. We have space for only a very brief synopsis of the practical portion of this paper. When the dropsy is great, and yet no convulsions occur, the author thinks "that a proportional quantity of urea is contained in the effused serum, and so, the blood getting rid of a part of the poison, uræmic intoxication is thus averted." The prognosis should be guarded. If the patient lies in a state of complete stupor, with stertorous breathing after the paroxysms, even although the fits are of short duration, the danger is greater than if the convulsions are stronger with a return to consciousness between the fits. The preventive treatment in sthenic cases consists of bleeding, active purgatives, unstimulating diet, exercise, and local treatment of lumbar pains by cupping, leeching, or sinapism. In asthenic cases, mild aperients, mild tonics, counter-irritation to the neck, dry cups and poultices to the renal region. The treatment of the paroxysm in sthenic cases consists of *one*, rarely two, free bleedings from the arm; of brisk purgatives, such as calomel and jalap; strong purgative enemata of soap-water and turpentine; cold applications to the head; flapping the face with a wet cloth, so as to excite inspiratory movements. After this shave the head, and apply sinapisms or blisters to it or to the nape of the neck. After bleeding, the inhalation of ether or chloroform is of great advantage. In asthenic cases bloodletting is contra-indicated; therefore, resort early to chloroform inhalations, and relieve the bowels. If chloroform should not be borne well, give a full dose of opium, or bromide of potassium in repeated doses. Emetics should not be given unless a meal has just been taken. If labour be not present, rupture the membranes, use Barnes' dilators, and deliver as soon as possible. All the manipulations necessary for this purpose should be done under chloroform. If labour be present, it should be hastened, under chloroform, by turning, or by the long forceps. The placenta should never be taken away, unless the patient is fully under the influence of chloroform, as fatal paroxysms have been excited by the passage of the hand. At the end of this paper is given a very instructive summary of the thirty-five cases.

A New Principle of Treatment in Prolapsus and Procidentia Uteri.—In a case of seven years' standing, Dr. Aveling removed a heart-shaped piece of mucous membrane from the interior wall of the vagina, the base being next to the cervix uteri. The uterus was then returned and secured out of sight by six wire sutures. The success was complete, and this he attributed to a marked retroversion of the uterus, caused by the dense vaginal cicatrix. He, therefore, infers that, if a prolapsed uterus be returned, and can be artificially retroverted, it cannot descend, because it will then lie across the vagina and not in a line with it. When the temporary treatment of prolapse is aimed at, he believes those pessaries act the best which press upon the anterior vaginal pouch, and thus produce retroversion. "For this purpose he uses a piece of stiff wire, with a loop at one end to receive the ends of a band around the waist, and a knob at the other, which rests in front of the cervix."

Reduction of Chronic Inversion of the Uterus by sustained Pressure.—The third day after her confinement the patient got up to micturate, when the womb shot out of the vulva. For six months she suffered from dreadful hemorrhages, and was reduced to the last extremity. Taxis had been repeatedly tried, but without success; finally, elastic bags were introduced into the vagina, and filled with water. In three days' time the uterus was reduced, but the woman died about forty-eight hours afterwards. Dr. Tait, who reports this case, declares that there were no symptoms of peritonitis or of laceration; but Dr. Hicks thought that, in these old cases, there may be adhesions, broken by the reduction, which might cause inter-peritoneal hemorrhage.

In addition to the matter presented to our readers, this volume contains the annual address from the retiring president, Dr. J. Hall Davis, and an address from the president elect, Dr. Graily Hewitt. There are also papers by Dr. Wynne, on an *Inveterate Case of Ulceration of the Cervix Uteri, cured by the Application of the Styptic Colloid;* by Dr. Hicks, on a *Case of Cæsarean Section;* by Mr. Rigden, *On the Age at which Menstruation commences;* and by Dr. Westmacott, *On the Whalebone Loop* or *Fillet.* We omit the descriptions of the new instruments, of hydrocephalic infants, anencephalic monsters, spinæ bifidæ, and of knotted umbilical cords, as the first require the accompanying diagrams, and the others possess but little practical value.

In conclusion, we cannot refrain from alluding to the careless manner in which these Transactions have been reported and edited. The punctuation is very faulty; the style often obscure; and the sentences so long and involved, as sometimes to require recasting to become intelligible. On page 55 we read that "Dr. Rasch exhibited a case of Hydramnios," when he simply related the history of a case of Hydramnios, the case itself being quietly at home, some miles distant. On page 218, Dr. Routh is represented as curing such a disease as "*uterine hypertrophe.*" Again, on page 197, the reporter saddles Dr. Protheroe Smith with the following ungrammatical and inelegant language: "The structure of the muscles *become* so deteriorated as to lose much of *its* power of contraction, often shown in the dead-house by the attenuated parietes *of abdomen*, in instances of tight lacing." Further, not content with making Dr. Smith speak of "ant*i*version" of the womb (p. 170), he repeats the offence in the form of an "ant*i*verted uterus" (p. 197). Not over-confident in nouns of the possessive case, the reporter hedges his grammar by such alternates as "Dr. Barnes's dilators," and "Dr. Barnes' dilators;" "Dr. Hicks's cephalotribe" and "Dr. Hicks' instrument." Will not some Fellow kindly set him right on this point, and also explain to him that such mistakes in gender as "septæ" and "labiæ" (pp. 56 and 82) are calculated to cast discredit upon so learned a body as the Obstetrical Society of London? W. G.

ART. XXII.—*On Aphasia, or Loss of Speech in Cerebral Disease.* By FREDERIC BATEMAN, M.D., M.R.C.P., Physician to the Norfolk and Norwich Hospital. 12mo. pp. 124. Lewes: Geo. P. Bacon, 1869.

THE different parts of this essay have, we are told in the preface, already appeared at certain intervals in the pages of the *Journal of Mental Science*, and it is in consequence of the favourable notice which it has received that it is reprinted in its present form. The author's labours are, as he remarks himself, rather iconoclastic in character, for his efforts have certainly been directed rather to the subversion of the four popular theories on the subject of aphasia than towards the establishment of one of his own. The four theories at present held on the subject are stated to be:—

1st. That of Schrœder van der Kolk, who places the seat of speech in the corpora olivaria.

2d. That of M. Bouillaud, who places it in the anterior lobes.

3d. That of M. Dax, who places it in the left hemisphere.

4th. That of M. Broca, who confines it to the posterior part of the third frontal convolution of the left hemisphere.

Many cases are adduced by Dr. Bateman to show that no one of these theories will explain all cases, although something may be said in favour of each one. He asks: "Is it certain that there is a cerebral centre for speech at all? When we talk of the faculty of speech, have we any very clear and definite notion of what we mean? May not speech be one of those attributes the comprehension of which is beyond the limits of finite minds? Does the loss of it necessarily imply organic lesion of structure?" The theory which has the fewest facts to support it, at least so says our author, is the one which has obtained most popularity—that of M. Broca. Seven cases of aphasia occurring in his own practice are reported, in none of which was there any lesion of Broca's convolution. Cases, however, in which disease of the third frontal convolution has existed without lesion of speech are rightly considered more fatal to the acceptance of Broca's theory than cases presenting precisely the converse condition. The impression left on our minds after reading the essay is, that undue importance has been attached to the occurrence of a lesion at the *centre* itself, and too little to the fact that the loss of speech may sometimes be due to disease of the fibres by which this centre is connected with the external organs of articulate language. "Speech"—to quote the language of the book—"is a complex faculty, consisting of two distinct elements, one physical, somatic, and material—a movement; the other psychical—the interior speech—the λόγος; and we must take care not to confound this inward with the outward speech or articulation, which is only a form of expression." Supposing for the moment that Broca is right in placing this centre where he does, it is evident that any disease, of what Jaccoud calls the motor apparatus of articulated language (l'appareil motor expressif), would of course involve the abolition of speech, either alone, or together with the loss of written language, or of the language by signs; for it is scarcely necessary to say the first is not always accompanied by the two latter. The occasional coincidence of aphasia with disease of some other part of the encephalon, does not, therefore, invalidate Broca's theory, unless it can be shown that the lesion does not involve or cause pressure upon the corpora striata, the crura cerebri, the pons Varolii, or the medulla oblongata, or the motor nerves which take their origin from it. A careful study of the cases, both Dr. Bateman's own and those he has derived from other sources, has convinced us, however, that we must regard this theory as not proven, and the same verdict must be returned as to the others.

The essay is divided into six parts. The first three parts are devoted to the bibliography of aphasia and to reports of cases. In the fourth and fifth parts the different varieties of aphasia, its causes, diagnosis, prognosis, and treatment, are treated of. In the remaining part the different theories are criticized, and the anatomy, physiology, and comparative anatomy of the brain are carefully studied, with the view of deriving all the aid these sciences afford us in removing the obscurity which now envelops the subject of the localization of the faculty of speech.

Dr. Bateman considers that aphasia may be considered under two heads, amnesic, and ataxic; the former includes both the loss of the memory of words and the loss of the memory of the art of how to say them; the latter, those cases in which the loss of speech is due to the want of co-ordinating power over the muscles of articulation. Although all cases may be referred to one or other of these heads, for the convenience of the clinical observer, they may be still further divided into the following varieties:—

1. Aphasia may differ in degree, from absolute speechlessness, to various grades of imperfection in the use of the faculty of language; it may be an ephemeral and intermittent symptom, or it may be a permanent defect.
2. It may consist simply in inability to say one's own name or the names of other people.
3. Or in the loss of memory of substantives
4. Or in the substitution of one word for another.
5. In the uses of stereotyped phrases.
6. In the perversion of speech. Patients can articulate, but there is no connection between the articulated sounds and the ideas they may be intended to convey.
7. The loss of speech may be the sole morbid symptom, or it may be accompanied by some paralytic symptom.
8. The defect may be limited to the loss of articulate language only, or may extend to written language, and also to the language of signs.
9. There is a variety of aphasia characterized by this peculiarity; that although the subjects of the affection can articulate nothing else whatever, they can give vent to an oath, and thus in the heat of passion or of excitement, words or phrases, not always correct as regards taste or ethics, are ejaculated, and which the patient is wholly unable to reproduce when the stimulus of emotion is wanting.
10. *Aphasia spasmodica*, spasmodic mutism, occurs in connection with hysteria and hypochondriasis, and may be of a more or less persistent character.

The following are among the principal causes:—

1. It may be congenital as in the deaf and dumb, and it is one of the frequent symptoms of idiocy.
2. It may be the consequence of direct injury to the brain.
3. It is a frequent symptom of tumours in different parts of the encephalon, of sanguineous deposits in the brain, and of softening of that organ; of exostosis or of malformation of the bones of the cranium; in fact, of organic lesions of various kinds affecting the cerebral substances, especially the anterior lobes.
4. It may depend upon embolism of the cerebral vessels.
5. It is an occasional attendant upon diseases of the spinal cord.
6. It may ensue as a nervous symptom. Many persons, under the influence of anger, joy, or excitement of any kind, are seized with a temporary incapacity to speak.
7. The epileptic condition seems to be a frequent cause of aphasia.
8. It would seem that aphasia is not an uncommon accompaniment of neuralgia and hysteria.
9. Reflex action, as, for instance, in the mutitas verminosa of Sauvages.
10. Several instances are on record in which loss of speech supervened on atmospheric changes, or on the application of cold or heat to the head.
11. Certain drugs, especially those obtained from the natural order Solanaceæ, would seem, in some instances, to suspend the power of speech.
12. Septicæmia, blood-poisoning, whether from uræmia, as in Bright's disease, or from alcoholism, gout, plumbism, or syphilis, is another frequent cause.

The diagnosis of this affection, of course, presents little real difficulty; the differential diagnosis, however, between the various forms, is not so easy. It is recommended that the urine should be examined carefully, especially in regard to the amount of phosphates contained in it, as an excess would indicate a disintegration of the brain substance. The thermometer and sphygmograph may also occasionally be of service. The prognosis will, of course, depend upon the cause which has given rise to the symptom, and is most favourable when it occurs as a sequel of continued fever, when it occurs as a neurosis, or is of hysterical origin, or when it arises from any moral cause.

Treatment of a curative character can only be applicable in a very limited number of cases. In some cases, however, the organs of speech have been educated *de novo*, and in this connection it may be well to quote the following from an observation of Dr. Osborne:—

"Having explained to the patient my view of the peculiar nature of his case, and having produced a complete conviction in his mind that the defect lay in his having lost, not the power, but the art of using the vocal organs, I advised him to commence learning to speak like a child, repeating first the letters of the alphabet, and subsequently words after another person. The result has been most satisfactory, and affords the highest encouragement to those who labour under this peculiar kind of deprivation; there being now very little doubt, if his health is spared, and his perseverance continues, that he will obtain a perfect recovery of speech."

There are some observations of M. Broca that show that, although there is no appreciable difference of weight between the two hemispheres, the left frontal lobe is perceptibly heavier than the right, and Gratiolet, an eminent physiologist, says that, in the development of the brain the frontal convolutions of the left hemisphere are in advance of those of the right, and from this cause it is that we are right-handed. M. Broca, however, we think, draws an unjustifiable inference from this, that because we use the left hemisphere for mechanical acts, therefore we use it for speech. We are not limited to the use of the right hand, and Gratiolet's observation, if it should be confirmed by others, is rather opposed to than in favour of Broca's theory, as it simply gives a reason for the greater use made of the right side by a majority of people, and rather tends to confirm the general impression that the brain is a dual organ.

Comparative anatomy confirms, to some extent, the theory that the cerebral centre for speech is seated in the frontal lobes. The cerebral convolutions in man are, as is well known, much more developed than in animals; and in apes which approach him in intelligence without having the faculty of speech, there is an extremely imperfect development of the third frontal convolution, coinciding with a greater development of some of the other frontal convolutions than is found in animals generally. In the microcephali, who cannot speak, the third frontal convolution is also found imperfectly developed.

Appended to the essay is an engraving of the convex surface of the left hemisphere, showing the disposition and arrangement of the cerebral convolutions, taken from a cast sent to the author by Prof. Broca, which adds very much to the value of this admirable monograph. J. H. H.

ART. XXIII.—*Lectures on Some Subjects connected with Practical Pathology and Surgery*. By HENRY LEE, F.R.C.S., etc. In two volumes. Third edition. 8vo. pp. xviii., 309, and xx., 386. London: John Churchill & Sons, 1870.

THESE handsome volumes embrace new and improved editions of three separate works, viz: "Diseases of the Veins" (Jacksonian prize essay for 1849), "Affections of the Rectum," and "Lectures on Syphilis," together with several detached papers and lectures which the author has at various times contributed to the *Medico-Chirurgical Transactions*, *St. George's Hospital Reports*, etc. The "Diseases of the Veins" and "Affections of the Rectum," as they appeared together in their second edition, were noticed in the number of this Journal for July, 1866, p. 217, and we can fully endorse the favourable opinion there expressed as equally applicable to them in their present new and enlarged shape.

Mr. Lee's first volume consists of nineteen lectures, which treat successively of purulent infection or suppurative fever, phlebitis and its treatment, varicose veins and varicocele with their treatment, the repair of arteries and veins after injury, mortification and other affections secondary to disease of the arteries, various diseases of the rectum, hæmorrhoidal tumours, polypi of the rectum and excrescences and fistula of the anus, strictures of the rectum, obstruction of the bowels as connected with the rectum, affections of the sphincter ani, malignant diseases of the rectum, restorative operations connected with the rectum, long-continued pain in bone, and excision of joints. The second volume contains forty-two lectures, of which thirty-seven are devoted to syphilis, four to gonorrhœa, and one to albuminuria as a consequence of surgical diseases. The last lecture is one of much interest, and refers to several cases in which albumen and the colouring matter of the blood appeared in the urine, without the existence of disease either in the kidneys or in any other part of the urinary apparatus. All of such cases which Mr. Lee has observed "have been instances in which there was evidence, more or less distinct, of coagula having formed in some part of the vascular system. These coagula," he continues, "have been disintegrated and removed. The colouring matter of the blood has disappeared with the other portions of the coagula; and when we find this same colouring matter reappearing in a disintegrated form in the secretion of the kidneys, we are justified, I think, in concluding that the matter so eliminated formed part of the coagula which had been disintegrated, and removed in the course of the circulation."

Mr. Lee's views upon the subject of phlebitis, and its connection with pyæmia, are so well known that it will not be necessary for us to enter upon an extended examination of the portion of his work devoted to these topics; and the same may be said with regard to the lectures upon varicose veins and varicocele, and upon rectal diseases. We may merely mention that our author continues to employ for internal piles the strong nitric acid, or the clamp and actual cautery, in preference to other modes of treatment. We are disposed to regret that, in speaking of the treatment of imperforate rectum, no mention whatever is made of Littre's[1] operation, which many surgeons, notably the author's own colleague Mr. Holmes, deem far superior to that of Amussat, in dealing with this painful affection. Mr. Lee's views upon syphilis and gonorrhœa are familiar to American surgeons, from the fact that the essays upon those subjects in Holmes' well-known *System of Surgery* are from his pen. We hail with satisfaction our author's acknowledgment in the present volume, that having been formerly, as he tells us his critics called him, a dualist in all but the name, he is now forced to "advance . . . with the logic of facts," and being "compelled to follow the path these indicate to . . . their logical conclusion," proclaims his belief "that syphilis in its cause, no less than in its character, stands separate and apart from all other diseases, and that the local, soft, suppurating, contagious sore is not the product of the same virus as that which gives rise to constitutional syphilis." This testimony, we need scarcely say, from one who has done so much original work in the field of syphilitic pathology as has Mr. Lee, is of the very highest value. Thus one by one, we may safely prophesy, those who, like our author, advance with the logic of facts, will leave the ranks of the unitists, till, at no distant day, the notion that all venereal sores are essentially identical will seem as antiquated and untenable as does now the view of Hunter, that syphilis and gonorrhœa were themselves the effect of one and the same cause.

Mr. Lee, in common with a very large majority of practical surgeons, employs mercury in the treatment of syphilis, and justly calls it the "one medicine alone, . . . which through good report and evil report, in spite of the strongest prejudices of some against its use, and the no less adverse influence of others who have employed it to an unjustifiable extent, has maintained its general reputation." The method of employing mercury which our author prefers is by fumigation, and this he resorts to even in the presence of primary symptoms. It is probably upon the whole safer to employ constitutional treatment during the first stage of syphilis, though we have never been able entirely to convince ourselves that the evolution of "secondaries" could be prevented by mercury, the evidence upon this point being, of course, mainly of a negative character. The plan which we prefer is the internal use of the protiodide, which, if well guarded with opium, entails no disagreeable consequences, and has the advantage of permitting greater concealment than the employment of the apparatus necessary for fumigation.

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[1] See Holmes' Surgical Treatment of Children, 2d edit., page 176 *et seq.*

The following *conclusions*, at which our author arrives, after carefully investigating the subject of "syphilization," will be read with interest: our readers will observe that Mr. Lee is disposed to attribute any efficacy which this mode of treatment possesses to its depurative action, thus agreeing with the views of our fellow-countryman Prof. Bumstead, as expressed in the number of this Journal for July, 1870. "We may, I think," says Mr. Lee, "conclude—

"1st. That no evidence has hitherto been adduced satisfactory to the profession, that syphilitic virus can be successfully inoculated upon a patient who is at the time the subject of constitutional syphilis.

"2d. That occasionally from the surface of an indurated sore, matter may be taken which, in a subject of constitutional syphilis, may be made to produce a number of local ulcerations having some of the characters of the soft chancre.

"3d. That during the continued irritation and depuration produced by such ulcerations the manifestation of secondary syphilis will disappear.

"4th. That the time required for the treatment of syphilis in this way is so long, and the inconveniences attending it are so great, that it is not at all likely to be generally adopted in practice."

In taking leave of Mr. Lee's handsome volumes, we cannot but congratulate their author upon the noble record which they furnish of excellent and useful surgical work: we sincerely trust that, in future editions of these "Lectures," still other "subjects connected with practical pathology and surgery" may be introduced, and handled with all that skill and care which Mr. Lee so well knows how to bestow. J. A., JR.

ART. XXIV.—*Lectures on Surgical Pathology delivered at the Royal College of Surgeons of England*, by JAMES PAGET, F. R. S., D. C. L. Oxon., Sergeant-Surgeon Extraordinary to her Majesty the Queen, etc. etc. Third Edition, revised and edited by William Turner, M. B. Lond., Professor of Anatomy in the University of Edinburgh. 8vo. pp. xvi., 850. London: Longmans, Green & Co., 1870.

A NEW and revised edition of Mr. Paget's classical *Lectures on Surgical Pathology* needs no introduction to our readers. Commendation of it would be as superfluous as criticism would be out of place. Suffice it to say that almost every page bears evidence that the present edition has been, as the author mentions in his preface, "carefully revised," from a clinical point of view by himself, and from the pathological, by his only less distinguished *editor*, Professor Turner. The latest observations of pathologists in all parts of the world have received due attention, and as a consequence the lectures in their present shape are not only, as Mr. Paget modestly hopes they may be considered, "better than they were," but probably the very best to which the student of pathology can resort. The introduction and harmonizing of new facts and deductions with previously entertained and sometimes more or less contradictory doctrines, is always a difficult task, and necessarily involves some of the risks which we are told attends the placing of new wine in old bottles; this difficult feat Mr. Paget and Prof. Turner have accomplished with a degree of skill and success which commands our warmest admiration. More than this, they have had the candor and good sense to change their views whenever it seemed necessary to do so, and even to abandon doctrines which were known all the world over as "Paget's," when discordant observations came with sufficient confirmation to entitle them to be accepted as facts. As an illustration we may refer to the subject of inflammatory lymph. In the previous edition of the lectures, the lymph-corpuscle was said to "form and float free in the liquid part" of inflammatory lymph, which it was declared "is, probably always, at its first exudation a pellucid liquid, which passes through the blood-vessels, especially the capillaries of the inflamed part." In the present volume, on the other hand, we are honestly told that "pathologists generally have renounced the opinion at one time entertained that lymph or pus-corpuscles arise by molecular aggregation in a coagulated exudation," and the views upon this subject of Cohnheim, as well as those of Virchow, receive due attention.

On other points, as for instance the absence of inflammatory action in the *immediate union* of incised wounds, the views formerly expressed are still maintained; and that they are so is, we may be sure, whether we agree with them or not, the result of no oversight but of careful and mature reflection.

Again, Mr. Paget retains the clinical classification of tumours adopted in his previous editions, and his reasons for this cause are so well put, and, we may add, are so satisfactory, that we transcribe them to our pages: "The principal division of tumours," he says, "according to their physiological rather than their anatomical characters, has not been retained without a careful reconsideration of the whole matter, and a just regard to the opinions of those who hold that such a foundation of classification cannot be stable. It is believed that any one who, with equally large opportunities for both methods of study, will examine with equal care, the manners of life, and the structures after death of large numbers of tumours, will find not less constancy in the one than in the other. In a very large majority of cases certain structures coincide with certain manners of life; and for all these the clinical foundations for classification (if it may be so called) would coincide with the anatomical. In a few cases there would be no such coincidence; in a few classification on either foundation is very difficult; in still fewer it may be at present impossible. But for all cases, so long as the anatomical foundations for classification are not nearly perfect, the utility of a clinical division and nomenclature of the great groups of tumours must justify the retention of names which, by custom and contrasted meanings, tell the facts which are in daily practice, the most important to be known."

While however the old classification is thus retained, the labours of those who have adopted a different system are by no means ignored, as the frequent foot-notes and references sufficiently testify. We would refer particularly to the note on pages 544 and 545, which contains in a very few sentences a succinct but clear account of the group of tumours which are classed together by Virchow as sarcomata.

We regret the omission from the new edition of Mr. Paget's work of the 36th lecture, which in the former issues was devoted to the pathology of *Tubercle.* A portion of it only is embraced in lecture 28th (under the heading of lymphoid tumours), but the greater part is entirely left out. This is, we think, to be particularly deplored, because the whole subject of the pathology of scrofula and tubercle is at present in such a confused state, that we should be extremely glad to have it illustrated with that clear light which Mr. Paget is so well able to throw upon it.

This large book is handsomely printed, and the illustrations (which are very well executed) are somewhat more numerous than in previous editions.

J. A., JR.

ART. XXV.—*On Hernial and Other Tumours of the Groin and its Neighbourhood; with Practical Remarks on the Radical Cure of Ruptures.* By CARSTEN HOLTHOUSE, F.R.C.S., etc. 8vo. pp. xii., 167. London: John Churchill & Sons, 1870.

THIS small work, the author tells us, had its origin in two clinical lectures delivered to the students of the Westminster Hospital in 1863. Their object was to direct attention to the difficulties which often attend the diagnosis of hernial tumours, and to protest against the practice (which Mr. Holthouse assures us is too prevalent) of performing herniotomy in cases of temporarily irreducible, but not strangulated hernia. To illustrate the first point, a number of cases are given (many of them from the author's own notes, but others extracted from the Pathological Society's Transactions, or the published writings of Pott and others), in which were made grave mistakes in diagnosis, sometimes followed by fatal errors in treatment. These "are published," the author assures us, "in no depreciatory spirit, but purely from a conviction that a knowledge of" them "is the best antidote to their recurrence." This disclaimer is perhaps necessary; as, but for it, the reader (observing that almost none of the mistakes were made by Mr. Holthouse himself, but by his colleagues, or by other surgeons who preceded him, or were associated with him in the care of the unfortunate patients) might be involuntarily reminded of the fable of the lion and the painter.

With regard to the second point, we can scarcely believe that the custom of performing herniotomy without the existence of symptoms of strangulation, is so prevalent as our author seems to think; in this country, we are sure the mistake is more apt to be on the other side—more patients perishing for want of the operation, or from its being too long delayed, than from its too hasty employment; and if our English brethren are so recklessly fond of the knife as Mr. Holthouse would seem to imply, they are strangely misrepresented by those surgical writers (such as Erichsen and Birkett), whom we are in the habit of considering as fair representatives of British surgery.

The greater portion of Mr. Holthouse's book is taken up with a record of cases, which, though sufficiently interesting in themselves, are brought together in a rather desultory manner, and will not, we think, really instruct the student as much as any of the well-considered chapters on hernia which may be found in the text-books of the day. In one particular we think Mr. Holthouse's description eminently adapted to confuse the mind of the student; this is in retaining the term *congenital hernia*, for hernia into the vaginal process of the peritoneum or into its funicular portion, without any qualifying explanation to show that it is not the *hernia*, but the *anatomical condition* which allows its formation, that persists from the time of birth.

No such qualification being given, we have the rather startling assertion (page 10) that it is a mistake to associate the term congenital with infancy, and that, in one case, congenital hernia first made its appearance in a patient sixty-five years of age. The fact is that in these instances the hernia is not really congenital at all; as Erichsen puts it, "the tendency is congenital, but the disease is not." It would be better, we think, with Mr. Birkett, to reject the term altogether, and classify herniæ strictly by their anatomical relations.

Mr. Holthouse's last chapter is "on the radical cure of ruptures," nearly half of its space being occupied by a quoted description of Mr. John Wood's method of operating. Only one case is given in which our author himself has attempted the radical cure (by the introduction of a seton), and in that case the disease recurred after a year. No new arguments are advanced in favour of the radical mode of treatment, while one of the strongest arguments against it, viz., that it cannot remove the abnormal elongation of the mesentery,[1] which is at least very frequent in cases of hernia, and which inevitably tends to cause a recurrence of the disease in the same or another part, is not even alluded to.

It is possible that, as Mr. Holthouse says, the *dangers* of operations for the radical cure of hernia have been exaggerated; still we cannot see the consistency of forbidding (as on page 77) *herniotomy*, "unless the symptoms of strangulation are persistent as well as unequivocal," and subsequently recommending an operation, which is in itself probably equally serious, for a case where there are no urgent symptoms at all.

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[1] See Birkett, in Holmes's System of Surgery, vol. iv. p. 230.

As a literary effort we cannot commend Mr. Holthouse's production: "interrogating the contents of tumours" (page 7) is as much too grand, as "the sudden flop with which" a hernia "slips in at the last" (page 51) is too familiar. J. A., JR.

ART. XXVI.—*On the Law which Regulates the Relative Magnitude of the Areas of the Four Orifices of the Heart.* By HERBERT DAVIES, M.D., F.R.C.P., Senior Physician to, and Lecturer upon the Theory and Practice of Medicine at, the London Hospital, &c. 8vo. pp. 20. From the Proceedings of the Royal Society, No. 118, 1870.

DR. DAVIES has certainly developed some interesting facts, whether the reasoning upon which he bases the necessity of their existence be legitimate or not. Using the measurements of Drs. Peacock and Reid, he shows that there is a striking approximation between the ratio of the area of the tricuspid to the area of the mitral orifice and that of the pulmonic to the aortic.

Thus, Dr. Peacock's measurements give—

$$\frac{\text{Area of Tricuspid}}{\text{Area of Mitral}} = 1.4\text{, nearly.}$$

$$\frac{\text{Area of Pulmonic}}{\text{Area of Aortic}} = 1.3\text{, nearly.}$$

Showing a difference of but .1

The approximation with Dr. Reid's measurements is still more marked. Thus—

	Males.	Females.
$\frac{\text{Area of Tricuspid}}{\text{Area of Mitral}} =$	1.31	1.36
$\frac{\text{Area of Pulmonic}}{\text{Area of Aortic}} =$	1.26	1.40
	0.05	0.04

Dr. Davies has also personally made a number of measurements in lower animals, and shows in the horse a difference of but .002; in the donkey, .04; ox, .01; calf, .04; sheep, .06 and .064; pig, .003 and .02; dog, .04 and .09.

This is indeed striking, and although we can hardly agree with Dr. Davies that the ratios are mathematically exact, or so nearly so that any differences must be due to necessary differences in measurements, we deem them sufficiently so to permit the laying down of a *physiological* law with regard to them.

With a view of confirming these results, Dr. Davies measured the pulmonic, mitral, and aortic orifices of a perfectly healthy heart, and from these data and the equations resulting from the above law, calculated the area of the tricuspid. Thus—

$$\frac{\text{Area of tricuspid}}{\text{Area of mitral}} = \frac{\text{Area of pulmonic.}}{\text{Area of aortic.}}$$

Or, by substituting known data—

$$\text{Area tricuspid} = 1.405 \times \frac{1.003}{.765} = 1.972.$$

He then measured the area of the tricuspid, and there resulted a difference between the measured and calculated results of but .098 inch.

So with the other orifices. And it is plain, also, how in this manner may be computed the difference between the measurement of a diseased orifice and its proper area, since the latter can be calculated from the equation. Such an instance is also given.

Again, on the supposition of the generally admitted data that—1st, the two ventricles are in health perfectly synchronous in their diastole and systole; 2d, that equal volumes of blood enter the ventricles during their diastole and are expelled during the systole; and 3d, that the ventricles are of equal capacity: since the amount of resistance to be overcome by the left ventricle is greater than that to be overcome by the right, it follows that "the perfect synchronism of the ventricular contractions can only be obtained by an exact graduation of the areas of the orifices of the aortic and pulmonary artery to the muscular forces impressed upon the contents of the two ventricles in systole, and consequently to the velocities of the streams issuing from those chambers. The area of the aortic must be therefore smaller than the area of the pulmonic, and in such proportion that the normal average contents (say three ounces) of the left ventricle shall occupy exactly the same time in passing through the aortic as is required by the three ounces of the right ventricle in passing through the pulmonic opening." The velocities of the streams must therefore be inversely as the areas of the orifices, and we have the following equations:—

$$\frac{\text{Velocity through aortic opening}}{\text{Velocity through pulmonic opening}} = \frac{\text{Area of pulmonic opening.}}{\text{Area of aortic opening.}}$$

Or, by substitution, velocity through aortic opening $= \frac{1 \text{ sq. inch}}{.75 \text{ sq. in.}} \times$ velocity through pulmonic opening $= 1\frac{1}{3}$ times the velocity through pulmonic opening; or, in other words, the velocities of the currents through the aortic and pulmonary orifices are in the ratio of 4 to 3.

By similar reasoning, the velocity through the tricuspid is shown to be $\frac{5}{7}$ velocity through mitral, or the velocities of the currents of blood in diastole through the tricuspid and mitral orifices are in the ratio of 5 to 7.

If, now, we concede that the ventricular contraction occupies $\frac{1}{3}$ the time between two pulses, it will occupy $\frac{1}{3}$ of $\frac{1'}{70}$, or $\frac{1'}{210}$; we have here data whence we calculate from the above equations the velocity of the blood through the

Aortic orifice to be 23.1 in. per second, or 2310 yds. or 1.3 miles per hour.
Pulmonic " " 17.3 " " " " 1725 " " 1 mile " "
Tricuspid " " 5 " " " " 500 " " .28 " " "
Mitral " " 7 " " " " 700 " " .4 " " "

In confirmation of the results that the velocities of the synchronous tricuspid and mitral currents are unequal, and that the latter presents a stronger dilating power than the former, Dr. Davies presents also the following reasoning:—

The two ventricles being of unequal thickness, and containing consequently unequal quantities and weights of muscular fibre, will necessarily require currents of blood of unequal momenta to overcome their respective *inertia*, fill their chambers, and complete their dilatation in exactly equal and the same times. That is, the momentum or the volume multiplied by the velocity of the mitral is greater than the momentum or volume multiplied by the velocity of the tricuspid current; but the volume in each is the same; hence, eliminating volume from each, we have the proposition to be demonstrated, that the velocity through the mitral is greater.

This novel method and these interesting results of Dr. Davies are decided contributions to our knowledge of the subject, and quite worthy the careful consideration of physiologists and pathologists, to whom we cordially recommend them. It would be a comparatively easy matter for those connected with large hospitals to repeat and extend these experiments, with a view to their confirmation or refutation.

After a careful perusal of Dr. Davies' essay, we cannot agree with a late reviewer in the *Journal of Anatomy and Physiology* that Dr. D. maintains—1. That the energy due to the contraction of the heart, by which resistance to the circulation is to be overcome, resides at the arterial orifices, in the form of *vis viva*. 2. That the velocity, and consequently the vis viva, of the blood depends upon the contractile force of the heart and the area of the arterial openings only. We believe this is more than he claims. His observations relate merely to the *relation between the size of the orifices*, and to the *average velocity* of the blood through those orifices, and he deals with the *vis viva* only in attempting, as it were, to confirm this latter. By *vis viva* is meant, as explained by Dr. Davies, the mass of blood in motion multiplied by the *square* of its velocity, differing in this latter respect from momentum, which is the mass of blood multiplied by the velocity. Momentum is substituted by Dr. D. for vis viva, since it does not affect the reasoning. It is true that, in referring to the forces which resist and at the same time aid the propulsion of the blood through the vessels, he omits, as by oversight, the force of the elastic coat of the vessels, but that does not affect the *fact* of the relations of the orifices, nor of the *average* rate through and at these orifices. J. T.

ART. XXVII.—*On the Causes, Prevention, and Treatment of Infantile Diseases; showing by what Means the present Mortality may be greatly reduced.* By SELBY NORTON, M. D., Fell. Obstet. Soc., Lond. 12mo. pp. 75. London: John Churchill & Sons, 1870.

A BOOK which would show us the means by which the present disproportionately large infant mortality could be reduced, would, we are sure, be warmly welcomed by the profession, and it is, therefore, with some feeling of disappointment that we express the opinion that the *means* which Dr. Norton points out are neither so novel nor so likely to be efficacious as he seems to think. The substitution of cow's milk properly diluted, for the various kinds of "improved food for infants" is expected to accomplish this most desirable result. We are, of course, perfectly well aware of the fearful amount of ignorance which prevails among mothers of all classes who are unable to nurse their infants, as to the proper kind of food to be given to them, but we cannot agree with the author in thinking that a similar want of knowledge is prevalent among physicians. The authors of most, if not all the standard works on diseases of children, call attention to the fact that farinaceous preparations, in consequence of the absence of teeth and the imperfect development of the salivary glands, can never be perfectly assimilated by infants during the first months of their existence, but must always be a cause of irritation to the stomach and bowels. Dr. Norton, however, brings forward this fact as one, if not entirely new, at least not generally known, and seems to attach so much importance to it, that we are forced to the conclusion that he is not quite as familiar with medical literature, even that of his own country, as he should be. Convinced, as we are, of the correctness of his views of the superiority of milk as an article of diet over the different preparations of starch, we cannot indorse his assertion that proper care being observed there will be no greater mortality among children so fed than among those brought up at the breast. The statement is, we think, scarcely true of England; it certainly is not of this country. Even with the greatest care that can be exercised an acid reaction will frequently, during summer, manifest itself as the consequence of the exposure of milk for a short time to the heat. This it is which renders children fed upon it, even in the country, liable to indigestions. How much greater this source of irritation must be in our large cities, and how impossible it will be to overcome it entirely will, we think, be evident to all.

Disorders of the digestive apparatus are not the only results of the administration of improper food, by which Dr. Norton means and understands starch; but it may by reflex action excite irritation of distant organs, as the lungs, larynx, and brain, manifesting its perturbating influence in the production of bronchitis, pneumonia, laryngismus stridulus, or convulsions. Bronchitis, he is disposed to think, very frequently originates from an error of diet in the infant, as it may also in the very old, and he regards its action as beneficial, for he says it gives rise to an increased secretion of mucus, "which after being coughed up in the throat is passed down into the stomach; the mucus completely coats every particle of the undigested something and floats it safely through the pylorus and through the whole length of the bowels." There may or may not be such a power as the vis medicatrix naturæ present in disease, but we submit that its action can scarcely be regarded as beneficial, when, as in this instance, it protects from one inflammation only by exciting another. Our author speaks of laryngismus stridulus and false croup as the same disease, whereas they frequently have only one symptom in common, the spasm of the glottis.

Dentition, it is thought, has received an undue prominence, being a process only attended with difficulty when the digestive organs are disordered, and being under such circumstances rather a consequence than the cause of the general condition. No one will deny the truth of this, and yet it would be impossible to free even the professional mind of the conviction, that the cutting of teeth is at least the exciting cause of many of the accidents which frequently attend it.

The term infant has in this book a limited signification, and includes only children who have not yet completed their first year; as it is at this time of life that the mortality is the greatest, and later a different set of diseases is observed. This is of course true, but as Dr. Norton regards all diseases to which the infant is liable, as directly dependent upon the irritation caused by starchy food, we are surprised that he had not extended the period of infancy, if not to the end of the first dentition, at least to the time of the complete eruption of the four first molars, at which time the child is liable to grind its food, and requires, and can digest other food than milk.

Perhaps the hope expressed by the author in the preface, "that he may have the good fortune to be read generally as well as by the profession," will account for some of the faults which we have indicated, but it will hardly, we think, be recognized as a sufficient excuse for them. J. H. H.

ART. XXVIII.—*Medical Diagnosis, with special reference to Practical Medicine. A Guide to the Knowledge and Discrimination of Disease.* By J. M. DA COSTA, M. D., Lecturer on Clinical Medicine, and Physician to the Pennsylvania Hospital, etc. etc. Illustrated with engravings on wood. Third edition, revised. 8vo. pp. 844. Philadelphia: J. B. Lippincott & Co., 1870.

THE first edition of this work appeared in 1864. It was reviewed elaborately in this Journal shortly after its publication.[1] We agree with the able writer of that review in saying at the time of the publication of this work that "few books have been more wanted than thorough, correct, and available manuals of medical diagnosis." The success of Dr. Da Costa's work has confirmed the correctness of this statement; and it has also confirmed another statement by the reviewer, namely, that the work "is not only a good, but at present, the best manual of Medical Diagnosis." When the size of the volume is considered, together with the fact that, in its practical object it is limited to the discrimination of diseases, the success, as shown by the call for a third edition within the space of six years, is remarkable. Bearing in mind the desirableness, to the great majority of physicians, that a large book on practical medicine should embrace, in addition to diagnosis, the etiology and treatment of diseases, the success of Dr. Da Costa's work furnishes convincing proof of its excellence; and, at the same time, this success is evidence of the value of works devoted specially to the subject of diagnosis. That a thorough, correct, and available treatise on this subject is a desideratum, no one, as we think, can doubt who appreciates fully the difficulties often incident to the discrimination of diseases, and (if the term may be allowed) the momentous importance to the practitioner of diagnostic skill with reference to his individual experience in therapeutics, and the judicious treatment of cases of disease.

The plan which Dr. Da Costa adopts of taking, as a point of departure, symptoms, instead of morbid states, or, in other words, diseases, seems to us decidedly the better of the two. In works on the practice of medicine, as a matter of course diagnosis enters into the consideration of individual diseases. The study of particular symptoms in their different and numerous diagnostic relations is complemental to the study of diseases with reference to their distinctive characters. It is important for the student that the subject of diagnosis be presented in both these aspects, to wit, *first*, taking symptoms as the starting point, and, *second*, as incidental to the consideration of diseases. Dr. Da Costa's work would have been less useful if he had adopted the plan of taking diseases as his point of departure. To some extent, however, the latter plan was necessary; for example, in treating of the diagnosis of the essential fevers.

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[1] Vide Am. Journ. of the Med. Sciences, No. for Oct. 1864, page 423.

A very effective method of presenting the differential points of the diagnosis of different diseases having features more or less in common, is to arrange the distinctive characters of each in parallel columns. This method Dr. Da Costa has to some extent adopted. If we were to offer a critical remark here, it would be to express a wish that this method had been more largely pursued.

An analytical review of Dr. Da Costa's work is not now needed. The improvement in the third edition alone calls for notice. The size of the volume, in this edition is increased by about one hundred and fifty pages. An examination, with reference to the revision and the additions, shows that the author has studied carefully the medical literature of the last six years in its bearing on his subject. He has also added to the fruits of his own clinical experience. The work is fully up to the present time, as regards the application of recent means of diagnostic investigation by means of the thermometer, the ophthalmoscope, the laryngoscope, and the sphygmograph. In fact, it is in no respect behindhand, but it represents fully our present knowledge of the subject of which it treats.

In commending this work, we do not lay ourselves open to the suspicion of a friendly bias, for our commendation is in accordance with the verdict of the profession. But praising it, as we do heartily and conscientiously, we would not have it inferred that, were we to undertake an analysis of it, we should find nothing to criticize. Can a reviewer ever say of any book, however excellent it may be, that it affords no scope for criticism? In looking through the volume we have noted several things which seem to us to be open to critical remarks. Were we writing a review, we should not be reluctant to play the part of the critic, believing that the better the book, the more it is deserving of critical inquiry. But the things which we have noted are of minor importance, and our criticism would simply involve differences of opinion with regard to which the author's judgment is perhaps entitled to more weight than ours. We conclude, then, by saying, as did the reviewer of the first edition of the work, that it is at present the best manual of medical diagnosis. A. F.

ART. XXIX.—*Transactions of American State Medical Societies.*

1. *Transactions of the South Carolina Medical Association. Annual Session*, 1870. (*Second Meeting since Reorganization.*) 8vo. pp. 56.
2. *Transactions of the Indiana State Medical Society*, 1870. 8vo. pp. 165.
3. *Transactions of the Minnesota State Medical Society. Session of* 1870. 8vo. pp. 46.

1. THE Annual Session for 1870 of the *State Medical Association of South Carolina* was held in Columbia, March 9th and 10th.

The Session was opened by a very calm and neat address by the President, Dr. A. N. TALLEY. Its leading theme is "The Hindrances to the Advancement of Medical Knowledge," with a brief reference to the means by which these obstacles are finally to be surmounted.

The first scientific paper, which is on "Liquid Glass (Silicate of Potash) as a Surgical Dressing form Imovable Apparatus," by Dr. J. T. DARBY, with the next paper giving an account of a case of "Sarcomatous Fibroma of Upper

Jaw successfully Removed," by Dr. R. A. KINLOCK, and also the closing paper in the volume on "Hair as a Suture and Ligature," by J. T. DARBY, will be found fully noticed on a subsequent page (p. 510).

Dr. R. W. GIBBES presents a paper on "Intra-Uterine Injections," with the history of a case of secondary post-partum hemorrhage in which persulphate of iron was successfully employed. We doubt the propriety of all intrauterine injections, more especially of substances of an active or irritating nature. Such injections are liable to produce serious mischief.

Dr. S. BARUCH describes an "Improved Uterine Sponge-Tent Carrier." The instrument consists of a canula of silver, hard rubber, or tin, six and three-quarter inches long, and one-eighth of an inch in diameter, having at each end a shoulder three-eighths of an inch in diameter. A steel or iron stylet, seven and three-eighths inches long, passes through the canula, which it closely fits. The stylet is mounted at its lower end on a handle three inches long, and one-quarter of an inch in diameter, and projects above the canula at its upper end one-half to five-eighths of an inch. This projecting portion is flattened, and has a blunt point, to prevent rotation of the stylet within the tent, when any force is required to enter the cervix. The tent being mounted on the projecting point of the stylet, and the cervix-uteri exposed by a full-sized cylindrical speculum, the point of the tent affixed to the stylet is to be inserted into the os uteri, the canula being held between the thumb and forefinger of the left hand; the stylet is now to be rotated by the right hand, and the canula at the same time gently pressed upwards. When the tent is thus passed into the required position, the canula is to be firmly held, and the stylet withdrawn about an inch, when the tent will be disengaged by its impinging on the upper shoulder of the canula. The instrument being now withdrawn, leaves the tent firmly fixed within the cervix. The superior advantages, we will say, using the words of its inventor, of the instrument described, will be appreciated by any one on using it once or twice.

2. The Twentieth Annual Session of the *Indiana State Medical Society* was held at Indianapolis, May 17 and 18, 1870. Its volume of Transactions opens by the address of the President, Dr. S. SUTTON, the subject of which is "Man's Power over Nature, and Medicines as Means by which he aids and controls the Laws of Life." A subject of vast extent and importance, and very ably discussed, so far as the limits usually allotted to an address of the character of the one before us would permit.

The first paper is on the "Treatment of Puerperal Hemorrhage," by Dr. G. W. MEARS. It forms a short instructive monograph of the subject discussed, but contains nothing new. It gave rise to a somewhat "lengthy" discussion, during which some good practical remarks were elicited: a few however of the positions assumed by the speakers were of more doubtful authority.

A paper on the "Utility of Ergot in Facilitating Labour," is presented by Dr. E. MENDENHALL. As a general rule, the use of ergot as a means for the facilitation of labour, is attended with very considerable danger, if not to the mother, at least to the child, and yet a discreet use of the remedy in cases in which the passage of the head is arrested or rendered tardy, simply by inertia, or irregular action of the uterus, has, in numerous instances, brought about a speedy termination of the labour, without the slightest injury to mother or child, either immediate or remote: nevertheless, in the majority of even the simplest forms of tedious labour, a timely resort to the forceps will afford, upon the whole, a greater security for the safety of both mother and child, than will a resort to ergot.

The next paper is on "Physical Influence upon the Organization of Structures," by Dr. F. J. VORHIS. A not very clear metaphysical inquiry as to whether vital organization is a product of physical or psychological agencies. It appears to us to be somewhat out of place in occupying a prominent position in the printed transactions of a medical society.

The two papers which follow are both on "Reduction of the Hip-Joint Dislocation." The first, related by Dr. H. V. PASSAGE, occurred in a very powerful, muscular man. The dislocation upwards and backwards was of ten days' standing, and considerable force had been employed, in vain, to effect its reduction. The patient was put completely under the influence of chloroform. At the end of twenty-five minutes manual extension was commenced, and kept up for a short time, until the position of the trochanter major indicated that the head of the femur was just behind the acetabulum. One of the assistants was now directed to press with his hand downwards on the crest of the ilium, the leg was elevated to an erect position, and lifted upwards—the patient lying horizontally—the head of the femur now immediately entered the acetabulum, with the usual noise consequent upon the reduction of dislocations of that joint. The paper closes with a few pertinent remarks on the form of dislocation met with in this case.

The second paper, by Dr. R. E. Haughton, comprises a somewhat elaborate exposition of the "principles of the flexion method" of reduction, which we are not disposed to discuss now.

Dr. G. V. Woolen presents a disertation on "Syphilis: its Pathology, and Treatment." The leading object of the doctor is to show the essential difference between the nature of the hard, indurated, or Hunterian chancre, and that of the soft, non-indurated, or suppurating sore, and the results of each respectively; with an examination into the bearing which a recognition of such essential differences between the two has, more especially upon the treatment of the disease. Dr. W. inclines to the doctrine that the two forms of venereal affection are the result of two poisons, essentially different in their nature and manifestations from beginning to end.

The paper, though interesting, is confessedly merely a recapitulation of some of the doctrines of the modern school of syphilography, as set forth by Bassereau in 1852, and since so ably defended by our countryman, Dr. Bumstead, by Henry Lee, of London, and by hosts of others less notable in medical literature.

Dr. Wilson Hobbs gives the history of a "Case of Disease of the Skull," removed by four operations. The case is one of considerable interest. The history of it cannot, however, be well condensed to a sufficient extent to enable it to be presented in an intelligible form within our necessarily restricted limits. The wood-cut illustrations are to a certain extent necessary to a proper understanding of the extent of the disease, and of the operation in its several stages.

Next we have a short paper on "Purulent Aural Catarrh," by Dr. C. E. Wright. The term purulent *catarrh* is objectionable, when applied to the chronic inflammations of the mucous membrane of the middle ear, attended with purulent discharge, inasmuch as the term is derived from an old and repudiated pathology. The affection indicated is one of frequent occurrence as a sequela of scarlatina, smallpox, measles, diphtheria, typhus and typhoid fevers; in children of a scrofulous habit, it is often the effect of cold. When overlooked or mismanaged in its first stage, it is liable to lead to very serious results. The paper of Dr. W. furnishes a very good outline of the pathology and therapeutics of the disease as taught by modern aurists, but we do not find that it contains anything new.

The remaining papers of the volume are an apology from the committee appointed to report on the pathognomonic signs of nephritis. Through Dr. J. A. Comingor, the committee present no report, being acquainted with nothing in reference to the subject that is not contained in the ordinary textbooks on diseases of the kidneys.

The "Report on the Board of Public Charities," by Dr. J. R. Weist, has chiefly a local interest; while the paper on the "Medical Rank in the United States Navy," by Dr. V. Kersey, merely reiterates the sentiments that have been uttered by every medical organization throughout the entire Union before which the question has come up for discussion.

3. The First Annual Meeting of the *Minnesota State Medical Society*, since its organization in 1869, was held at St. Paul, February 1, 1870. The opening "Address by the President," Dr. S. Willey, contains much useful advice, especially in respect to a few leading subjects, in the determination to carry out which, either individually or by organized efforts, the best interests of every

member of the profession will be best secured, and the good, not merely of a remote isolated neighbourhood promoted, but that of the entire family of man, not at the present day only, but for all time to come.

We find from the minutes of this annual session that Dr. Richardson, from a committee appointed at the June meeting to examine into the "Origin, Cause, and Treatment of Typhoid Fever," submitted a report; that Dr. Mattocks read, on behalf of Dr. F. H. Milligan, the history of an "Interesting Case of Intra-uterine Hydrocephalus, complicated with Spina Bifida;" that Dr. A. B. Stuart read an interesting account of the "Extraction of a Fibro-Cartilaginous Tumour from the Knee-Joint," the tumour, attached to the anterior crucial ligament, was removed by direct incision, and the patient recovered with perfect use of the joint; Dr. Blood also read a paper stating the reasons why he preferred amputation at the knee-joint to amputation at the lower third of the thigh; Dr. Hewitt likewise read, by previous appointment, an essay upon the "Relations which the Profession sustains to the Public, and the Duties which these Relations Impose;" notwithstanding, with the exception of one, these reports and papers were referred to a "committee on publication," they have not been inserted in the volume of "Transactions" before us.

Prizes of fifty dollars each were awarded to two essays, one on "Epidemics and Endemics of Minnesota," and the other on "Cerebro-Spinal Meningitis." They were both, it was found, by the same author, Dr. W. W. Sweney, who modestly declined to receive the two prizes awarded, but desired that the award of one hundred dollars, be placed in the hands of the Executive Committee, as a "Prize Fund," for the ensuing year. D. F. C.

Art. XXX.—*Recent Surgical Pamphlets.*

1. *Sarcomatous Fibroma of Upper Jaw (Epulis?) successfully operated upon.* By R. A. Kinloch, M.D., Professor of Surgery in the Medical College of the State of South Carolina, Charleston, S.C. Read before the South Carolina Medical Association, at the Annual Session, 1870. 8vo. pp. 7. (With three illustrations.)
2. *Liquid Glass (Silicate of Potash) as a Surgical Dressing for Immovable Apparatus, and Hair as a Suture and Ligature.* By J. T. Darby, M.D., Professor of Anatomy and Surgery in the University of South Carolina, Columbia, S.C. Delivered before the South Carolina Medical Association, at the Annual Session, 1870. 8vo. pp. 24.
3. *On Amputation through the Knee-joint.* By William MacCormac, M.A., M.D., M.R.I.A., President of the Ulster Medical Society, Surgeon to the Belfast General Hospital, etc. etc. (Reprinted from the *Dublin Quarterly Journal of Medical Science*, May, 1870.) 8vo. pp. 22. (With a photograph.)

1. Prof. Kinloch's case is one of very great interest. The patient, a negress aged 25, suffered from an enormous tumour which occupied the front and right side of the face, filling the buccal cavity, and projecting through the aperture of the lips, which it greatly distended. The lower teeth were completely hidden by the growth, which forced the chin down towards the sternum, while by its encroachments in other directions it had flattened and displaced the nose, and had almost closed the right eye. There was, moreover, a lachrymal fistula, and the patient, who had of course lost the power of chewing, could scarcely articulate, and breathed with difficulty; salivation existed, with much fetor. The projecting part of the tumour (in which were imbedded two teeth) was pink, shining, firm and elastic, without any ulceration; the semi-circumference of the growth, which had originated only eleven months previously, was no less than twelve and a quarter inches.

The tumour was removed, together with the right upper jaw, by two incisions, one running through the centre of the nose and lip, and the other passing from the zygoma to the angle of the mouth. No ligatures were required, and the patient made a rapid recovery, the greater part of the wound healing by adhesion. A slight plastic operation subsequently removed a little deformity at the angle of the mouth, and the photograph, taken two and a half months after the removal of the tumour, shows what must certainly be considered a most admirable result. The tumour, which weighed nearly two pounds, exhibited under the microscope a fibrous stroma interspersed with numerous small circular nucleated cells.

2. In the first part of Prof. Darby's interesting paper he gives an account of six cases in which he has employed the silicate of potassa, or soluble glass, as a substitute for starch or other material in the application of the immovable bandage, or, as the French more accurately call it, the "*bandage amovo-immobile.*" Two cases were of fractured thigh, one of separation of the epicondyle of the humerus, one of ununited fracture of the leg, one of hemorrhagic ulcer, and one of sprained wrist, bent radius, and dislocation of the ulna from its radio-carpal joint. The result in each case was satisfactory, and Prof. Darby declares that, after a fair trial, he is induced to place the silicate above either plaster, starch, glue, or dextrine, for general usefulness. The soluble glass is applied either with the hand or with a brush, three or more layers of bandage being used, according to the degree of firmness required. Similarly favourable testimony on behalf of this mode of dressing is adduced in an extract from a letter received by Prof. Darby from Dr. R. W. Gibbes.

In the second part of Prof. Darby's communication he details twenty cases of wound or operation in which he has employed *horsehair* as a suture or ligature. This material, which he began to use in 1868 (not knowing at that time that it had been previously employed by Mr. T. Smith, of St. Bartholomew's Hospital), seems to have proved in Prof. Darby's hands quite as unirritating as the metallic suture, while an obvious advantage was in many instances derived from its greater flexibility. For ligatures it was found abundantly strong, and much more readily tolerated by the tissues than the ordinary silk thread. Prof. Darby recommends that the hair should, before it is used, be washed in a weak solution of carbolic acid.

3. In this interesting paper, Dr. MacCormac, the well-known surgeon of the Belfast Hospital, narrates five cases of disarticulation at the knee, with one of Carden's operation (through the condyles of the femur). Four of the disarticulations recovered, the fifth and the case of Carden's operation proving fatal. Dr. MacCormac recommends the formation of two flaps, a long anterior and a shorter posterior flap, both cut from without inwards, the articular cartilages and patella being allowed to remain. The popliteal vein usually requires ligature, and care should be taken to avoid the use of tight or heavy dressings. In several cases short-cut "carbolized catgut ligatures" were used, and in one instance it is stated that no trace of them was seen after the operation, the ligatures having been covered with granulations and apparently absorbed. Dr. MacCormac refers to the writings of Smith, Markoe, and Brinton upon amputation at the knee-joint, and quotes the statistics published by the last-named surgeon in the number of this Journal for April, 1868 (p. 555), attributing them, however, by a slip of the pen, to Dr. Markoe, of New York. Dr. MacCormac's paper, which we doubt not will do much towards establishing knee-joint amputation as a standard operative procedure in Ireland, is preceded by a short historical sketch of the operation, and is adorned with a very well executed photograph.

J. A., Jr.

ART. XXXI.—*A Treatise on Intraocular Tumours; from Original Clinical Observations and Anatomical Investigations.* With one Chromo-Lithographic and fifteen Lithographic Plates. By H. KNAPP, M. D., late Prof. of Ophthalmology and Surgeon to the Ophthalmic Hospital, in Heidelberg. Translated by S. Cole, M. D., Chicago. 8vo. pp. 323. New York: William Wood & Co., 1869.

THE author in his preface gives the following reasons for the study of the subject of his treatise: 1st. "Because the diseases here spoken of are perfectly harmless and masked in their earliest stages, but on further growth become so horrible and destructive to the patient and to those about him, that they awaken of themselves the highest sympathy of the physician; and, 2d. Because I am convinced that intraocular tumours especially are destined to throw light upon many general questions of fundamental significance for the theories and therapeutics of tumours in general."

He states, that in the eye malignant diseases are generally discovered in their early stages, since any disturbance of the vision sends the patient promptly to his surgeon; but if the seat of lesion were elsewhere, as, for example, in the mammary gland of women, dangerous and even fatal progress may have been made in its development, when it is presented for the first time for medical treatment. Moreover, the diagnosis of these growths in their incipiency is rendered possible by the means for testing vision, and by the ophthalmoscope, by which the deepest recesses of the eye are opened to our inspection, and lessons in pathology are afforded which can be obtained by the examination of no other portion of the body.

Moreover, the operation of enucleation of the eyeball intact, containing a growth which experience has shown will if undisturbed produce death, if performed whilst the sclerotic is yet normal and before the germs have found their way into the tissues of the orbit, or the disease has extended along the optic nerve, enables the surgeon to apply the *experimentum crucis* to the procedure of operative interference, and to ascertain its value for the eradication of malignant disease; a method of treatment which has been brought into such serious doubt by the numerous failures which have been observed in operations undertaken for the ablation of such tumours situated in other tissues.

As a field for the observation of the pathological anatomy of such morbid growths, an examination of the very instructive and well-executed plates in Dr. Knapp's volume will convince one that the eye thus diseased is unsurpassed.

As the result of many years of observation at his clinics, the examination of the literature of the subject, and the collection and arrangement of appropriate cases coming under his own notice, Dr. Knapp divides ocular tumours into two classes only, viz., Glioma (encephaloid) of the Retina, and Sarcoma, either melanotic or unpigmented, of the Choroid, and arranges his book into two parts accordingly.

In this classification he follows the nomenclature of Virchow, based on the anatomical characters of the growths; and whilst by no means denying that true carcinoma may not occur in the eye, he states that he has not observed it, nor found any convincing evidence thereof in the histories of cases reported by others.

He next gives with great clearness the clinical histories and the results of seven cases of glioma, accompanied by excellent lithographic representations of the appearances presented to the unaided eye, as well as of those observed by the aid of the microscope.

Of his clinical histories seven illustrate glioma, and a very short *résumé* of them will give the reader an idea of their progress and terminations.

CASE 1.—A child eighteen weeks old, one eye entirely blind, the other able to follow a light, in whose right eye the parents had observed at first a yellow reflection, followed by enlargement and vascularity of the whole eye. This was enucleated and placed in Müller's fluid for future examination after hardening. This solution consists of potass. bichromat., two to three grammes; sodæ sulphat., one gramme; aquæ, one hundred grammes.

The other eye presented marked symptoms of the same disease, and even with the naked eye the lower portion of the fundus was seen to glisten with a yellor colour. The child recovered from the enucleation and was dismissed in six days. Two years passed, and no local return of the disease had occurred in the right orbit.

The other eye had progressed and was then disorganized. In six months more a large tumour had grown from the left orbit, and several large growths were observed on the cranium; death in a fortnight. No abstract can do justice to the account of the pathological changes found after death in the cranium and liver, nor can words give any idea of the appearances of the tumours of the orbit and of the diploe, both macroscopic and microscopic, as depicted by the author's well-executed illustrations.

Case 2.—A child, age four years; for a year a yellow reflex had been observed behind the left pupil; four weeks since rapid growth of eye, with headache and vomiting, commenced. The case was recognized as glioma of retina, with cerebral complications. Enucleation was performed, from which the child recovered in ten days, to die, however, in four weeks in a comatose condition.

The lesions in the eye are well described and depicted, but an autopsy was refused.

Case 3.—Is a description of the pathology of an eye with glioma, in the author's collection of specimens.

Case 4.—Child two and a half years old. More than a year since a white reflex from the fundus was observed by the family physician, which was followed by enlargement of the eye, great congestion and a corneal ulcer. On examination, pronounced to be glioma. On enucleation, the optic nerve was found thickened, and it was drawn forward and severed as far within the orbit as possible. In two months a reddish medullary tumour was seen projecting from the orbit, and in four weeks more death took place. No autopsy.

Case 5.—Child two years old; first seen October, 1862. At birth the father saw in left eye a bright reflection resembling that of a cat's eye; when examined, the eye was enlarged, the cornea barely to be recognized, and a soft extra-ocular tumour was found in the orbit. Extirpation of globe and tumour was performed. The other eye was found by the ophthalmoscope to contain a yellow mass in its fundus. In four weeks a fleshy tumour had sprung from the orbit from which the ball had been removed, and death took place in January, 1863.

Case 6.—Left eye of a boy, two and a half years old, enucleated, which became diseased five months before; became red, opaque, and protruded; and was found on examination, after death, to present a pure glioma, with extension to the optic nerve, pia mater, cerebrum, cerebellum, and spinal cord.

Case 7.—A boy, age two and a half years, whose right eye had apparently been destroyed by scarlatina, and from which a tumour the size of a walnut protruded, soft, vascular, and easily bleeding. It was pronounced glioma, and removed. Child dismissed in seven days after operation. In three months he presented himself, with a tumour in the orbit, and a second growth as large as a hen's egg, in the parotid region. The orbital tumour, in size equal to the egg of a goose, was extirpated, and found to be a pure glioma in structure. Child was dismissed in a few days, and his family informed of the probable speedy fatal termination of the disease.

General Description of Glioma of Retina.—In appearance this growth resembles soft, brain-like marrow, of a red-gray colour; and under the microscope, in the fresh state, it consists of round cells about the size of lymph corpuscles, each having a large nucleus and one or more nucleoli, or, perhaps, none at all. After having been placed in Müller's fluid, the cells resemble those of the granular layers of the hardened retina. They lie in an intercellular material, homogeneous when fresh, but granular and seen as a fibrous network with a binocular microscope and an objective magnifying from two hundred to three hundred diameters, after treatment with a hardening solution.

The morbid process is believed to be a proliferation of the retinal granular layers, which extends itself to other tissues, either by immediate contact or by dissemination of its germs, which become then self-generative. Thus an extension along the optic nerve to the brain or spinal cord, or a metastasis to some internal organ, is the most frequent cause of death, even after the fibrous capsule of the eye has been invaded and the entire orbit occupied by large vascular, and ulcerating tumours.

In the first stage, glioma is recognized by examination by the oblique illumination, or by the ophthalmoscope, after the use of atropia, and by testing the field of vision. A yellow or white reflection from an elevated mass in the fundus may be observed, which by the precise methods now in use, and described at length by the author, can be measured in its thickness by the examination, by the ophthalmoscope, by the upright image, by ascertaining with what convex lens the details are clearly perceived, and in its other dimensions by a comparison with the optic disk. In this manner in his first case, a coloured lithograph of which is given, showing the appearances of the fundus, a portion of the diseased retina was seen with positive $\frac{1}{18}$, and the summit of a growth upon it could be yet distinguished through postive $\frac{1}{10}$, from which he infers that the retina was thicker in the first described portion by about 0.5 mm., and the apex of the growth 1 mm. advanced beyond its normal limit, and therefore thickened to this extent, and that the disease extended to 3 mm. in breadth and 4 mm. in length.

In the second stage, symptoms of irritation and inflammation appear, and the media lose their transparency; the tension is increased, and the whole eye is notably enlarged from the rapid growth of the tumour, and there is pain in the eye and its vicinity.

In the third stage, the pseudoplasm passes beyond the globe by extension through the optic nerve to the chiasm, when total blindness may ensue, or to the brain, when the usual symptoms of tumour in the nervous centres may be developed; or the cornea or sclerotic may be perforated, and a soft ulcerating growth may be rapidly developed, bleeding frequently and freely, and causing death by exhaustion where the cranium has not been invaded or other organs destroyed by metastasis to them of the malignant germs.

Nothing is known as to the causes, remote or immediate, of glioma, but it is essentially a disease of early childhood, and must, in some of the cases recorded, have been in existence at birth.

In the first stages, the disease may be mistaken for an unpigmented sarcoma of the choroid, from which it is to be distinguished principally by its true yellow metallic lustre.

In later stages, after vision has been entirely lost, and the media are less transparent, Dr. Knapp recommends for the examination the use of direct sunlight, which is best employed by the aid of a heliostat, so arranged as to throw the light into a dark chamber.

There are several morbid changes that may be mistaken for glioma, as for example, simple detachment of the retina, the presence of a cysticercus or suppurative choroiditis, etc., and for the differential diagnosis the reader is referred to Dr. Knapp's volume.

The prognosis is very unfavourable, and in well-established cases the results have been invariably of a fatal character, either from exhaustion or hemorrhage after perforation of the globe, or from extension to the encephalon and the development of cerebral glioma. Nevertheless, as has been lucidly described by Robin and Virchow, the proliferation of a given tissue is not so malignant a process as is the growth of true cancer, which consists of a stroma of connective tissue having epithelial-like cells in its areola. Furthermore, the dense capsule of the globe offers a formidable obstacle to the extension of a hyperplasia which arises in the granular elements of the retina. Evidence is also not wanting that retrogressive metamorphoses of a fatty or calcareous nature, may arrest the growth and convert it into a permanent and innocent atrophy.

As for treatment, the author says, should a unilateral glioma of the retina be recognized early, enucleation of the globe is indicated, with the division of the optic nerve as far back as possible.

For the second stage, with increased tension and marked inflammation, he recommends the extirpation of the eye together with the orbital contents, to remove entirely the germs that may have extended beyond the fibrous capsule.

Even the last stage, with perforation and exophthalmos, may be treated in the same manner with some hope of averting a fatal result. In bilateral glioma, the study of case first teaches that both balls should be enucleated, since in the one which was removed the disease was arrested, no recurrence had appeared at the end of two and a half years, and death ensued from the development of the disease in the other eye. This branch of his subject is terminated by a statement of the medical treatment recommended by Sichel for procuring the atrophy of encephaloid growth of the eye, which consists of local and general bloodletting, mercury, and the most active of the alteratives; and he does not favour the opinion that malignant growths can be treated successfully in this heroic manner when the powers and nutrition of the body are already in a failing state.

Part Second is devoted to the discussion of Sarcoma of the Choroid, based upon the clinical histories of eight cases, with their pathological lesions, general and local, carefully described, and clearly depicted in numerous lithographic illustrations.

Case 8.—A man aged 65, disease first observed eighteen months previously, and ascertained on careful inspection to be a morbid growth, grayish-black in colour, protruding into the anterior chamber, and detaching the peripheral margin of the iris. Enucleation was performed, and the eye externally found perfectly normal in appearance. On section three tumours were found covered with retina, and springing from the choroidal layer.

Nine months later the man died with all the symptoms of malignant disease of the liver, lungs, and stomach. No autopsy was made. No return of the disease had occurred in the orbit.

Case 9.—Woman aged 62. For six months vision had been impaired, tension increased, and pain had been present in left eye, which, on examination, presented a morbid growth close behind its lens. Enucleation was performed with entire success, since no relapse, local or general, has occurred at the time of writing, three years after operation. On section a tumour was found springing from the ciliary region, covered with retina, and composed of sarcomatous tissue.

Case 10.—Male, aged 73, vision of left eye impaired for five months, is found to present a morbid growth just behind the lens. The ball, with a tumour at its posterior pole, was enucleated and found to contain a sarcomatous growth. There was no local return, but in six months death occurred, and although no autopsy was made, the author believes that the lungs, liver, and kidney were, from the symptoms observed, the seats of metastatic sarcoma.

Case 11.—A male aged 63 presented himself with a tumour which protruded from the lids, and had evidently caused a perforation of the nasal side of sclerotic, and now filled the orbit.

This growth with the orbital contents was removed, and on examination proved to be a melanotic glio-sarcoma. He recovered from the operation in ten days and was discharged, but when last heard from he was dying with a tumour of the orbit, and a growth in the abdomen.

Case 12.—Age 44. This man presented a growth of a bluish-black colour, which was removed by extirpation of the ball and the orbital contents, and found to be a medullary melano-sarcoma. A relapse occurred in the orbit, and a tumour appeared there, which three months after the first operation was radically removed, and he enjoyed good health for two months. Four months later death occurred from metastasis to the lungs and liver, and a tumour the size of a hen's egg was found within the cranium after death.

Case 13.—Mr. S., aged 52, suffered for three years; first, with impaired vision, and next with acute pain, which led to the enucleation of the globe. A tumour the size of a hazelnut was found within the ball, which proved on dissection to be a sarcoma, with spindle-shaped cells. The disease appears to have been totally eradicated by the operation, since no relapse nor metastasis has occurred, and two and three-quarter years have elapsed.

Case 14.—J. N., aged 30. A globular tumour, yellow in colour, seen with $+\frac{1}{6}$, was detected in the fundus of right eye, with the ophthalmoscope, which, from the author's experience, was believed to be a choroid sarcoma, since all tumours within the eye, not occurring in children, he holds to arise from the choroid.

The anterior chamber, iris, tension, and general appearance of the eye were normal; the field of vision was three-quarters of its proper extent; fingers could be counted at four or five feet, and there was no pain, yet enucleation was proposed and performed. A tumour of the size of a hazelnut was found, composed of white vascular sarcomatous tissue. No recurrence of the disease was observed. The man died in seven months of debility, and the author believes that from the circumscribed nature of the growth, and its radical extirpation, this case may be considered one of permanent cure.

Case 15.—V. W., aged 6 years, was operated upon by enucleation of the bulb, for a growth which could be readily perceived just behind the lens, and which on examination proved to have its origin from the choroid. The wound healed quickly, and at a period of two and three-quarter years after, the boy enjoys excellent health.

Although in some cases there might be no macroscopical difference observed between glioma and sarcoma, yet with the microscope the sarcoma is seen to consist of a tough and more fibrillated intercellular substance, and of cells, round, elongated, or spindle-shaped, containing each a large well-defined nucleus, with one or more bright and well-marked nucleoli; when pigmented it exhibits in the cell contents granules of brownish-black colouring matter.

It is met with more frequently in the choroid proper, although the ciliary body appears to be a frequent point of development. Covered by the retina the tumour may encroach upon the vitreous space, and press forward the iris, lens, and cornea, giving rise to symptoms of increased ocular pressure, and glaucomatous inflammation; the ball becomes enlarged, and is perforated by the pseudoplasm which then vegetates in the orbital tissues; lobular masses may protrude from the opening between the lids, the conjunctiva gives way, and a freely ulcerating surface is presented to view.

Death by exhaustion from this local lesion is anticipated by metastasis to other organs, necessary to existence, as for example to the brain, lungs, liver, pleura, stomach, spleen, or kidneys, where after death morbid growths of a character similar to the choroidal sarcoma are found.

Of the etiology nothing is known further than that cases have been observed which had a traumatic origin.

As to prognosis, sarcoma terminates fatally sooner or later, since no case of spontaneous cure has been observed with precision, although in malignancy it is second to carcinoma, since it belongs to the class of homœoplastic tumours. Of the seven cases clinically reported, three have had no relapse, and may be regarded, "if we are inclined to optimism" as radical cures, whilst the other four died within a year from the date of operation, with evidences of generalized sarcoma.

Even this proportion is considered by the author as too favourable for our present knowledge upon this subject, but it affords proof that the operation is the more sure, and the cure more probable, the earlier the disease is diagnosticated and the ball extirpated.

Graefe says, however, that "he can remember no case in which after a very thorough extirpation of a tumour of this nature, the state of apparent cure had lasted more than four years."

The treatment advised by Dr. Knapp is the immediate enucleation of the ball whenever a diagnosis can be clearly made of a growth as yet intraocular. He advises that the optic nerve should be examined to ascertain the probable extension to it of the pseudoplasm, and where this is suspected he directs that the nerve should be drawn forward, and divided as deeply as possible in the orbit.

Even when glaucomatous inflammation is present, and the ball is distended, the operation may be successful, as in Case 13. Should secondary or local recurrences, be subsequently found, he advises the total extirpation of the contents of the orbit, with a view to spare the patient the horror to himself and those about him, of a disgusting lesion on his face. Where metastasis has occurred the treatment can only be symptomatic, and need not be further discussed.

This production of Dr. Knapp is worthy of careful study, and reflects much credit upon him as a skilful clinical observer and accomplished pathologist. His views as to classification and nomenclature will meet with opposition, and time will decide whether glioma is a multiplication of the retinal granular layers, or a hyperplasia of the connective tissue. However unfavourable the results of these reported cases may appear, it should lead practical surgeons to use increased diligence in the early diagnosis of these malignant growths since it is only in their earliest stages that an operation for their removal can be performed with any prospect of a radical cure. W. T.

ART. XXXII.—*On the Etiology of Bright's Disease, with Remarks on the Prophylaxis.* By GOUVERNEUR M. SMITH, M. D., Physician to the New York Hospital, etc. 8vo. pp. 34. Transactions of the New York Academy of Medicine, 1869.

DR. SMITH has embodied in this paper, which was originally read before the New York Academy of Medicine, the statistics of three hundred and eight cases of Bright's Disease, of which histories are to be found in the medical records of the New York Hospital. These statistics will be of value to any one interested in the pathology of this disease, but it is especially in relation to its etiology and prophylaxis that the pamphlet before us treats.

In reference to the appearance of albumen in the urine, Dr. Smith asks whether it may not, under certain circumstances, be a salutary symptom. "May it not be," he says, "an effort of nature to remove from the system a material which might be converted into an inimical substance?" Nature, he thinks, is so conservative in her processes, that we have no right to regard the escape of albumen from the blood into the renal secretion as in all cases due to mechanical causes. Moreover, he has found that in patients threatened with uræmic symptoms the appearance of a large amount of albumen in the urine was often followed by an improvement of the symptoms. With a view of testing how far the amount of albumen in the urine depended upon the quantity of albuminous food eaten, he directed that the urine of two patients should be examined daily: first, while they were allowed an ordinary mixed diet; and, secondly, while they were restricted chiefly to rice and arrowroot. The result in both cases was, that the amount of albumen excreted was very much diminished during the ingestion of starchy food. While there is, therefore, no question that the restricted diet is of advantage in the treatment of the disease, there is equally no doubt that the excesses of the table play very frequently a large part in its causation, and this remark is true as well of eating as of drinking.

To the use of alcoholic liquors has generally been ascribed much of the renal disease that exists in this country and England, and the result of Dr. Smith's observation is to confirm the general impression in this respect, notwithstanding the effort made by Dr. Dickinson, of London, to prove the contrary. Dr. Smith thinks that Dr. Dickinson's conclusions, although apparently correct, are liable to the criticism. that among the fifty patients classed as those dying from other causes than delirium tremens, and among whom it will be recollected the disease of the kidneys was almost as frequent as among the fifty dying from mania à potu, may have been many who had been at some time in their lives intemperate, and this source of error will always be present in hospital practice. As a more certain way of arriving at the truth, our author compares the mortality from Bright's disease with the prevalence of intemperance. In New York the excessive use of ardent spirits is greater than in any of the large cities of the world, and the proportion of deaths from Bright's disease to deaths from all causes, is found to be greater than elsewhere.

Another reason, however, for the great frequency of this class of diseases in New York is to be found in the fact, that the average temperature of the city is 51° F., and "the researches of Dickinson have shown that places liable to a large proportion of renal disease have an annual mean temperature which is not lower than 46°, nor higher than 57°, and that Bright's disease chiefly abounds where the mean temperature is not far removed from 50°." A change of residence is, of course, recommended wherever the means of the invalid permit, and as our own country comprises within its limits a great variety of climates, he will rarely be obliged to seek in foreign countries a suitable place of refuge. It is obvious, however, that beneficial as a change of climate will often be found, its good effects will be counteracted by neglect to observe the laws of hygiene. To the large class, who in a city like New York must remain at home, we can only recommend that they should avoid all the known causes of the disease, and perhaps there is none more active in bringing on exacerbations and more easily avoided, than the exposure of the body while perspiring or insufficiently clad to the cold. In this connection Dr. Smith asks the pertinent question, whether it is not as much the duty of the physician to warn those whose occupations render such exposure frequent, of its danger, as it is in the case of those who work in metals. To lead and arsenic, among other causes, is assigned their due share in the production of these diseases.

Dr. Smith has noticed that deafness is not uncommon in those whose urine contains albumen, and is disposed to view this association of aural and nephritic lesions in the same light as we regard the coexistence of ocular and renal symptoms. He recommends that the urine should be examined in all cases in which the cause of deafness is obscure. Of course allusion is not here made to the mere dulness of hearing which frequently attends and is dependent upon uræmia.

The paper bears the evidence of careful preparation and a good deal of research, and we think it a valuable contribution to the study of Bright's disease. The word *Brightian* is frequently used and is certainly convenient; we do not, however, recollect having observed it in any other writer. J. H. H.

ART. XXXIII.—*New Facts and Remarks concerning Idiocy: being a Lecture delivered before the New York Medical Journal Association*, October 15, 1869. By EDWARD SEGUIN, M.D. 8vo. pp. 47. New York: Wm. Wood & Co., 1870.

THE present lecture may be viewed somewhat in the light of an appendix to a much larger work, published in 1866, under the title of "Idiocy, and its Treatment by the Physiological Method." Revised by the son of the author, Dr. E. G. SEGUIN. (8vo. pp. 457.)

The lecturer, after pointing out the necessity of a general recognition by physicians of the minimum of knowledge of the causation, premonitions, and diagnosis of idiocy, required of every practitioner, proceeds to a consideration of the differential diagnosis and prognosis between that form of idiocy which admits of improvement under a proper course of treatment, and the form which is irremediable. He then presents a brief notice of the State and private institutions for the treatment of idiots in this country, their number, and importance, with a special notice of the management pursued in the institutions at Syracuse, N. Y., and that at Barre, Mass. The subject of general and individual training, as pursued in the institutions just mentioned, is next considered.

"The State institution (at Syracuse, N. Y.) is but a school where idiots are received, if improvable, and kept as long as they do improve. In it the physiological treatment is applied mostly to groups; the children, constantly in contact, being raised up from idiocy by the incessant action of the whole on each. The sexes are completely separated, in dormitories and gymnasii—not always at recess. They take together their meals, lessons, walks, musical exercises, dancing, and other evening entertainments.

"On the other hand: The private school (at Barre, Mass.) is an institution for the young and improvable idiot, and a life long retreat for hopeless cases. In it the physiological method is applied to a pupil by a teacher, who carries him, with strict regard to his individuality, from instinctive to intellectual operations, through personal imitation, etc. The inmates live in separate buildings; boys and girls have their grounds, schools, teachers, matrons, attendants, etc., apart. Some even eat and are taught in their own rooms. The best of them only take their meals with the physician's family and enjoy together evening games."

The lecturer remarks that it is difficult to understand, unless by actual observation, how the same thing—the development of intellect in the idiotic—can be done so well, and yet so differently, as it is accomplished at Syracuse and at Barre.

The topics next considered are "new causes of idiocy. Social evils prolific of nervous degeneracies. The four main causes of deterioration and of depopulation actually at work."

On the different forms of idiocy met with in the offspring of parents in the different ranks or conditions of society, the following remarks of the lecturer will be found interesting:—

"Mrs. Brown," wife of Dr. Brown, the principal of the school for idiots, at Barre, "whose opportunities of observation in respect to children of the more opulent classes have been greater than those of any other person now living, and whose turn of mind admirably qualifies her for clear and correct generalization, remarked to me that the children of endless siestas and satieties, or of moneyed and sensualistic hyperæsthesia, differed materially from those equally incapacitated by local influences, home privations, and mute motherly suffering during pregnancy; the former presenting more variety, the latter more uniformity in their symptoms. If this generalization of hers is verified, and I know of no facts or reasons to the contrary, she is entitled to rank with the ablest thinkers on this subject. To show the importance of her discovery, let us give it a shape and formula:—

"Among the nomadic tribes there are no more idiots than insane. In certain secluded settlements idiocy is a sequel to cretinism. Among the labouring classes, who know of civilization only by its hardships and suffering, idiocy is found in its simplest and most easily recognized forms—sthenic and asthenic.

"Among the wealthier classes. idiocy is not only oftener aggravated by accessory diseases, but also complicated with abnormal semi-capacities or disordered instincts, which produce heterogeneous types to an almost unlimited extent. It is from this class, almost exclusively, that we have musical, mathematical, architectural, and other varieties of the *idiot savant;* the useless protrusion of a single faculty, accompanied by a woful general impotence."

In the concluding portion of the lecture is pointed out the necessity of a school for the *comparative* study of *idiocy* and normal youth, and of the intellectual and physiological methods of education, with reference to the prevention of idiocy in the predisposed. D. F. C.

Art. XXXIV.—*Summer Mortality in the Cities of the United States.* Paper read before the New York Academy of Medicine, June 17th, 1869. By Stephen Rogers, M. D. 8vo. pp. 18.

This paper recommends itself to the favourable notice of the physicians of all our larger cities, especially those of our Middle and Southern States by the correctness and practical importance of its teachings, so far as these go. From few of the positions laid down by the author in reference to the prominent causes of the very great increase of mortality of the summer months over that of the colder seasons of the year, should we feel inclined to dissent. In no instance, however, would our dissent, even though we should succeed in establishing its validity, materially invalidate the correctness of his general conclusions.

Dr. Rogers has not exhausted the subject of which he treats. Besides the causes noticed by him, there are others by which the mortality of our summers, especially in our larger cities, is liable to be augmented—and particularly among the infant portion of the population; many, if not all, of which are capable of being counteracted by proper sanitary measures, rigidly enforced.

The remarks of Dr. R. in reference to the etiology and prophylaxis of cholera infantum are pertinent and sound. Indeed, his general directions for the avoidance of disease during the heat of summer are especially worthy of remembrance.

"We (physicians) must all believe, and then we shall all teach that *pure* undiluted milk of the cow is an excellent and the *best* generally available substitute for the mother's milk, and so in time we shall convince the people that barley-water, and arrowroot, and sago, and farina, and crackers, and flour, and all this class of articles, are never to be thought of as infant food while milk can be procured. We shall then prevent an untold amount of infant disease and death during our summers. First, by providing the enfeebled stomach with a proper and easily digested food in sufficient quantity; and second, by diminishing in a notable degree the general and growing practice of wet-nursing, than which we know of nothing that so directly tends to deprave public morality and to provoke infanticide.

"Let mothers nurse their own children while they have milk, taking it for granted that they never have too much. Let the orphan children have all the good, undiluted milk of the cow they will take, and cold water when they need it, and we have done all we can for them in the way of food.

"Keep the adult and the infant population as cool as possible during the intense heat of our summers. Encourage every mother to nurse and take care of her own children, if possible, and discourage wet-nursing, both at home and in public asylums, by every legitimate means. When the infant is only in part or not at all supplied by the breast, give it all the best cow's milk it will take, and our summer mortality will be very greatly diminished." D. F. C.

ART. XXXV.—*The Normal Temperature in Children.* By JAMES FINLAYSON, M. B., late House Surgeon to the Clinical Hospital and Dispensary for Children, Manchester. 8vo. pp. 19. Glasgow: Dunn & Wright, Printers, 1869.

On the Temperature of Children in Phthisis and Tuberculosis. By JAMES FINLAYSON, M. D., Manchester. 8vo. pp. 32. Glasgow: Dunn & Wright, Printers, 1869.

THESE pamphlets are reprints from the *Glasgow Medical Journal* of February and November, 1869, and contain a good deal of valuable information in regard to the temperature of children both in health and disease. From some observations made by Dr. Finlayson upon children convalescing from acute diseases, he was disposed to think that the temperature in children was frequently lower in the evening than in the morning, and that the amount of daily variation was greater in them than in adults. With the view of testing the accuracy of this impression two hundred and eighty-three observations were made upon eighteen healthy children, ages varying from twenty months to ten and a half years. The temperatures were all taken in the rectum, a method which Dr. Finlayson prefers, because "the maximum temperature is, as a rule, reached much sooner, the perfect position of the bulb is secured without fear of displacement, while the temperature of the part is, without doubt, a more *uniform* index of the internal heat." It involves, moreover, he thinks, really no more trouble than the more usual method.

Dr. Finlayson's observations seem to have been made with great care, and the deductions which he draws from them will be found in the number of this Journal for April, 1869, p. 522.

In conclusion, he says: "It is well known, for example, that high evening temperatures are the rule, in cases of tubercular and enteric fever—often most difficult cases to make out in the young subject. A persistent *evening rise* of only one or two degrees comes to be very significant of mischief, if, in health, there ought really to be an *evening fall* to that extent. Many cases of tubercular disease in children have been alluded to by writers, and some have come under my own notice, in which the evening temperature could only be regarded as 'normal.' It remains to be seen whether an altered view of the word 'normal' may not here come to our assistance; but the question of pathological temperature is beyond the scope of the present paper."

The second paper is evidently a consequence of the first. Observations were made on eight children of different ages, the temperature being, as in the healthy children, taken in the rectum, and the following conclusions seemed to be established by them:—

1. There are three types of tubercular temperature.

a. Morning temperature, normal, or subnormal. Evening temperature, *more or less* elevated.

b. Morning and evening temperatures both abnormally high, with distinct tendency to evening exacerbations.

c. Morning and evening temperatures both abnormally high; exacerbations, without any constant or obvious reference to the time of day.

2. A continued elevation of the temperature in all cases of tuberculosis cannot be admitted, for if 98° to 99° F. be taken as the normal standard, some of Dr. Finlayson's observations and even some of Dr. Ringer's show that children with undoubted tubercular disease, advancing, and even, perhaps, leading to death, may have an evening temperature within the limits named.

3. There is, however, always some departure from the strictly normal course of the temperature in tubercular or phthisical children, for in all the observations the evening temperature was higher than the morning temperature, or higher than in healthy children, excluding, of course, the temperatures which were taken in the collapse just preceding death. In one case, where recovery was thought to have taken place, there was a tendency to evening diminution of temperature, as in health.

4. The thermometer is of service to the physician in the diagnosis of phthisis and tuberculosis.

a. It gauges the fever.

b. We sometimes discover from its use the typical course of tubercular fever, more or less high evening temperatures, with morning remissions, or

c. The absence of the strictly normal course of the evening temperature, which, if corroborated, may possibly assist us in diagnosis.

5. The relationship of the temperature to the nature of tubercular disease as yet rests in considerable obscurity, but it seems probable that the typical elevation of the temperature in this disease may really be due to the character of the concurrent inflammation.

J. H. H.

Art. XXXVI.—*Archiv für Dermatology und Syphilis.* Herausgegeben von Dr. H. Auspitz, Docent an der Universität Wien, und Dr. Filip J. Pick, Docent an der Universität Prag. II. Jahrgang, Drittes Heft. 8vo. Seit. 172. Prag, 1870.

The medical periodical literature of Germany is exceedingly rich in journals not only embracing the medical science generally, but especially devoted to medicine in a special sense, to surgery and midwifery, and to the diseases of women and children, as well as to each class of diseases according as they are seated in the different organs and tissues of the human body; while in addition they have journals devoted each to some one of the specialties connected with the collateral branches of medicine.

These journals are for the most part of a very high character, and under the care of editors of learning and experience. They furnish a rich fund of valuable information available for the most part in our daily ministrations at the bed-side of the sick. Occasionally we meet among their contents with a communication, the information contained in which would become more attainable by a large body of practitioners, were it not overloaded and obscured by too "much learning" of very little practical value. It is hardly worth while in reporting a series of observations bearing on the etiology, pathology, or therapeutics of any particular disease or class of diseases, or in detailing our general conclusions based upon our clinical experience, upon any point connected with the theory or practice of medicine, to go back to Hippocrates and give a very elaborate exposition of the views upon the subject of which we treat of every distinguished teacher up to the present time; yet many a contributor to the leading German journals may be detected sinning in this wise.

The "Archiv" before us is one of the most recent of the German medical journals. It is under charge of an able corps of editors and collaborators. So far as our acquaintance with the work extends, its contents comprises a series of valuable contributions adapted to increase our knowledge of the pathology and treatment of the specialties to which its pages are devoted—diseases of the skin and syphilis.

From a very long, but highly interesting communication which appears in the original department of the number of the Prague "Archiv" before us, on the "*prodromal exanthem*" of smallpox, from Dr. TH. SIMON of Hamburgh: We present the general conclusions of its author as a specimen of what matter the journal is composed. From its other contents, we propose, from time to time, to enrich the "Quarterly Summary" of the "American Journal."

We would remark that in an appendix to the communication of Dr. S. he gives the "statistics of the Hamburgh variolous epidemic of the years 1863–1864. These statistics are arranged in tabular form. To transfer them to our pages would occupy more space then their intrinsic value would warrant.

The general conclusions deduced by Dr. S. from observations made by him in thirty eight cases, a notice of each of which cases, more or less extended, is presented in the paper before us, are as follows:—

1st. There is belonging to variola a well-marked prodromal exanthem, of a dark scarlet color, even with the surrounding skin, occupying circumscribed portions of surface, accompanied or not, as the case may be, with hemorrhage. The exanthem occupies for the most part the backs of the hands and the upper surface of the feet, or the folds of the knee or elbow-joint.

2d. The circumscribed portions of surface which are occupied by the prodromal exanthem before the appearance of the variolous efflorescence usually remain free from the smallpox. This has been observed to be true of all parts of the surface excepting in the neighbourhood of the inferior abdominal region and some other regions of the trunk.

3d. In the greater number of cases the prodromal exanthem precedes by nearly twenty-four hours the occurrence of the first stage of the variolous eruption, and continues in some instances for a day or two beyond this period. On certain parts of the surface it may continue present until variolous vesicles have become fully developed—even in some cases the prodromal exanthem does not entirely disappear until after the maturation of the pocks has commenced.

4th. It, undoubtedly, is often the case that the prodromal exanthem transcends all the other initial symptoms. So marked is the initiatory chill and the subsequent increase of temperature that the first exanthem must be received as the initial symptom of the actual variolous attack.

5th. It is a question whether in certain cases, the occurrence of a characteristic prodromal exanthem previously to the setting in of fever will enable us certainly to foretell the occurrence of a variolous attack. If, says Dr S., the prodromal exanthem appears on the second or third day of the attack it will exercise no influence upon the course of the fever (the temperature of the patient), while, in general, on the other hand, there is a fall in the temperature of the patient's surface on the first outbreak of variola.

6th. There are cases, however, in which the occurrence of the prodromal exanthem is to be received as furnishing an undoubted critical prognosis, inasmuch as when this occurs, the subjective feelings of distress experienced by the patient diminish or disappear, and the increased temperature terminates critically. With the first appearance of the variolous eruption an increase of febrile heat occurs, or from a normal temperature there will ensue a secondary accession of fever.

7th. In the epidemic of smallpox which prevailed in Hamburgh during the years 1863 and '64, from the observations made by Dr. S., it appears that the prodromal exanthem occurred far more often in males than in females. In a prognostical point of view its value was almost none. It was found that the cases in which it occurred, were proportionately more severe and fatal than those in which it was absent.

8th. The protective power of an attack of variola (*blattern*) remains very complete for a term of *fourteen* years, at the termination of which the protection is liable in a large number of cases suddenly to terminate. Individuals who remain proof against the contagion of variola up to their thirtieth year, present a proportionately perfect resistance to a subsequent attack.

D. F. C.

ART. XXXVII.—*Chloroform* versus *Pain, and Paracentesis of the Bladder above the Pubes.* By the late J. H. JAMES, F.R.C.S., etc. etc. 8vo. pp. 61. London: John Churchill and Sons, 1870.

A SHORT preface to this slender volume informs us that, among many valuable papers left by the deceased author, were the two "tractates" here presented to the public; they are published by the author's executors, who trust that they will be welcome "to some whose valued approbation encouraged him to labour through many infirmities," and as a means of discharging "a debt of filial love."

The first "tractate" compares the relative advantages of chloroform inhalation or the induction of anæsthesia generally, and of the pain which it is meant to relieve or prevent; and the author comes to the conclusion (which we doubt not our readers will consider a wise one) that under certain circumstances anæsthesia is better than pain, and that the use of chloroform or other means of inducing insensibility is therefore occasionally justifiable. The last section of the first "tractate" is headed "Practical Remarks on some Emergencies specially threatening Life;" the author recommends various "*immediate* succors," such as dashing cold water in the face, vigorous friction, the admission of a current of cold air, mustard emetics, the application of boiling water, saffron tea, and peppermint cordial. These somewhat diverse remedies are advised—rather indiscriminately—in cases of collapse, hemorrhage, asphyxia of new-born children, cholera morbus, acute laryngitis, alarming symptoms supervening during bronchitis, and "swallowing liquids the wrong way." The exact order in which these "succors" are to be employed is not stated, but we suppose if a dying patient could be neither frozen nor boiled, and obstinately refused to vomit, it would be proper to administer saffron tea—and even this by enema, lest it should be swallowed the wrong way. "In cases of lipothymia various methods are proposed. Thus, on the one hand we have brandy and ammonia, on the other cold water, which is often the best,[1] but then it should be just pumped, and containing, it may be, free oxygen—at all events some peculiarly stimulating quality, and on this, more than on the temperature, its value depends." Cold water is certainly a more convenient remedy than brandy and ammonia—especially in practice among charity patients; we are reminded by the above sentence of a precept in that standard obstetrical work "Aristotle's Compleat and Experienc'd Midwife,"[1] which directs that if a pregnant woman "happens to long for anything which she cann't obtain, let her presently drink a large Draught of pure cold Water."

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[1] Ἄριστον μὲν ὕδωρ. [*Pindari Olymp.*, I. 1.]

We might cull from Mr. James's pages many other maxims of undoubted wisdom—such as that patients who are too ill to rise, should by all means remain in bed—but we hasten on to the treatment of "cases of emergency, . . . from chloroform." This consists in (1) "raising the head of the table or bed a few degrees . . . by placing hassocks, pillows, or other suitable materials at hand," (2) in ejecting "all useless persons" from the apartment, (3) keeping the air in motion "by pumping the room by the door or by fans, and opening every door or window, (4) sprinkling Sir W. Burnett's solution[2] upon fans which are then made to "play around the patient's head," (5) briskly rubbing the chest and stomach with a rough towel wetted with a mixture of vinegar and salt, and then applying a large piece of hot flannel, and (6) the application of "the boiling water blister." We must confess that were we in danger of death from chloroform, we should prefer to stake our chances upon *artificial respiration* (which is here not even alluded to), than upon either chloride of zinc whisked about our head, or upon the "boiling water blister" to any less noble part of the person.

Mr. James's second "tractate" is upon "paracentesis of the bladder above the pubes," an operation which, he thinks, deserves more attention than it has generally received. Eight cases are narrated, in seven of which this operation was performed, in the eighth the puncture having been made through the rectum. Mr. James complains, and with some reason, of the discordant and often obscure directions given by surgical writers as to the best mode of tapping the bladder above the pubes, and yet the instructions which he himself gives, seem to us not much clearer than those with which he finds fault; thus with regard to the direction in which the trocar should be thrust, he tells us that in dealing with thickened and contracted bladders "it would seem probable that a horizontal direction, or nearly so, would give the best chance of entering the cavity," forgetting that though the *horizontal* direction might be proper enough while the long axis of the patient's body was in a *vertical* plane, some other direction would have to be chosen were the patient in a recumbent or even semi-recumbent position. For distended bladders, but with normal walls, Mr. James recommends a slightly curved trocar, four or four and a half inches long, introduced about one inch above the pubes, and directed a little downwards. For bladders with greatly thickened walls he apparently prefers a straight trocar, five inches long, introduced as before mentioned in a "horizontal direction."

Upon one point we are glad to be able to indorse what Mr. James says, in the most unqualified manner;—and that is in the expression of the opinion that "the catheters of the present day do not present the most favourable curve." On the contrary, modern instrument-makers seem to vie with each other as to who shall make a catheter least easy of introduction. J. A., JR.

ART. XXXVIII.—*Variola: Causes, Nature, Prophylaxis, and Treatment. Report of the Committee appointed by the St. Louis Medical Society*, Jan. 15, 1870. By G. SPINZIG, M.D.

Conférence Médicale de Paris pour l'examen de la Question de la Vaccine. Cinquième Séance (22 Juin, 1870) *Procès-Verbal. Tribune Médicale*, 26 Juin, 1870.

THE positions assumed by Dr. Spinzig, the author of the report to the St. Louis Medical Society, are as follows: 1st. Variola is dependent upon general causes common to other diseases. 2d. The eruptive characteristics by which variola is recognized are transitory phenomena as necessitated (fixed) resultants of the operations of physical laws. 3d. No "specific" or "contagious" virtue can be ascribed to this disease, and "infection" is only accomplished by actual *inoculation* from its matter, which, however, is common to other decaying and putrid animal substance. 4th. Vaccination *is entirely devoid of "protective" power*, and *totally* an unwarrantable practice, as most serious and destructive consequences are thereby inflicted upon the human organism. 5th. Prophylaxis and amelioration of variola only rest on those sanitary measures that promote health.

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[1] Fourth edition, London, 1721, p. 30.

[2] A solution of chloride of zinc.

It will hardly be expected that we should inquire into the validity of the foregoing propositions, or attempt a refutation of the very futile efforts made by Dr. S. to give them even a character of plausibility. It will suffice to say that the conclusions of the writer are in conflict with the experience of the whole medical world, and, so far as regards his negation of the protective power of vaccination, he repudiates the positive results of tests put in execution, upon a most extended scale, in Europe and this country.

By the Medical Conference of Paris a very large amount of documentary and verbal information was collected, embracing the experience and convictions of the leading physicians of France and her dependencies. An analysis of this mass of testimony, according to M. Daly, to whom the analysis was intrusted, shows invariably the truth of the following leading positions, which, it will be perceived, are diametrically opposed to those laid down in the St. Louis Report, in reference to the same points of the questions it discusses: 1st. Variola attacks a large number of the non-vaccinated and many of the revaccinated persons who are exposed to its contagion or infection. 2d. Variola is incomparably more severe when it occurs in the non-vaccinated and non revaccinated than in others. 3d. When variola makes its appearance in any community, it is invariably prevented from spreading, and promptly extinguished, when immediate vaccination or revaccination of the *entire* population is practised.

From the testimony received by the Parisian Conference it appears that the proportion of the revaccinated liable to variolous infection is 2.33 per cent. It is extremely probable, to M. Daly very certain, that this small percentage of those liable to infection among the revaccinated, mostly of a less grave form of infection, would be sensibly reduced, were attention had to the question, whether the revaccination had not been practised at too remote or too recent a period, to render its protective agency certain, or whether, in fact, the revaccination had been at all effective.

The meteorological question bearing upon the occurrence of variola in an epidemic form has been carefully examined by M. Amédée Tardieu, who, while he does not contest the protection from smallpox afforded by vaccination in ordinary seasons, yet believes that such prophylaxis will often fail when the disease prevails epidemically. Yet, remarks M. Daly, the increased development of epidemic variola within late years, during which the meteorological conditions must have been necessarily various, proves that these conditions can have but very little, if anything, to do in causing variolous epidemics.

M. Gallard is of opinion that the protection from vaccination has become less effective from the practice which has prevailed for some years, of performing vaccination on infants a few days after birth. This opinion, says M. Daly, is worthy of a serious examination, inasmuch as it emanates from a learned and judicious mind, but it is simply an opinion—an assertion, as yet unproved. But, he adds, that which is not a mere opinion is, that the protective efficiency of the vaccine virus becomes, by constant use, deteriorated. Were this not the case, why should revaccination have become legitimately recognized? Why should we see infants of five years of age, who had been vaccinated a short time after their birth, attacked with smallpox? Or, again, why was recognized the necessity of resorting to the cow for a renewal of our stock of vaccine matter?

The facts collected by the Parisian Conference all point to the deterioration which vaccine matter experiences after it has passed for a series of years, through the human system, and to the consequent necessity of recurring at short intervals to the cow for a new supply. M. Gallard prefers a recourse to the matter produced in the sore heel (grease) of the horse. In this opinion M. Daly coincides, since, as he remarks, he read the important communication from M. Le Duc de Versailles, which appeared in the number of *La Tribune* of the 19th of June, 1870. D. F. C.

ART. XXXIX.—*Practical Anatomy; a Manual of Dissections.* By CHRISTOPHER HEATH. Edited, with Additions, by W. W. KEEN, M. D. First American from the Second English Edition. Philadelphia: H. C. Lea, 1870.

NUMEROUS as the published guides for dissectors have been, scarcely any seem to fulfil all the requirements of the student. Valuable anatomical information is often sacrificed to lengthy discussions on niceties of incisions and rules for delicate processes of disintegration of the cadaver; while occasionally the "Dissectors," as these works are familiarly called, are swollen into the ponderous dimensions of systematic treatises on descriptive anatomy. The work before us seems to have successfully aimed at a happy medium; it is full and yet concise, while its directions for the use of the knife are judiciously woven into the general mass of anatomical details. The additions made by the American editor bear the evidence of manipulation by an experienced anatomist, who is thoroughly alive to the needs of the student at the dissecting table. They are profuse, practical, and appropriate. Without alluding particularly to the multitude of minor corrections or additions bracketted, if we may so speak, on almost every page of the text, we may call especial attention to the editor's general remarks on hernia (p. 129), with the original diagram accompanying it, to the scheme and plan for studying the triangles of the neck (p. 334); the description of the action of some of the muscles of the lower extremity as ligaments (p. 185); the anatomy of the superior laryngeal nerve, according to Luschka; the description of the Y-shaped ligament of Bigelow (p. 209), etc. etc. Twenty entirely new and original cuts have been added in the American edition. Some of these diagrams will be extensively copied by anatomical teachers for class demonstrations. Dr. Keen has also made the action of some of the muscles more technically and absolutely clear, that for instance of the supinator radii longus (p. 75). whose supinating power is the weakest of all its actions. The rules for the best modes of studying certain parts of the body, the abdominal viscera, for example (p. 260), are also calculated to impress themselves vividly on the memory of the student. The most important change of construction of the text made by the editor has been in placing, for convenience of dissection, the perinæum, abdominal wall, and hernia in close proximity to the leg. The directions for the dissection of the eye have been rewritten by him, and are now very full and exact, being doubtless the result of the experience derived from repeated and careful demonstrations in the lecture room.

Important matters not generally discussed in works of this kind, are embraced in the appendix, being full and complete directions for the preservation and injection of subjects, and in regard to anatomical preparations in general. This very useful chapter is also from the pen of the American editor.

The volume occupies from five to six hundred pages, and is a beautiful specimen of typographical execution. R. J. D.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *On the Functions of the Sympathetic System of Nerves.*—Dr. Edward Meryon read an interesting paper on this subject before the Royal Medical and Chirurgical Society (June 14th, 1870). He commenced by showing that every sympathetic ganglion, in all animals, is connected with three forms of nerve-fibres, namely, motor, sensory, and sympathetic proper, or the fibres of Remak. That on entering a ganglion these several forms of nerves separate into their component fibres, and unite with the ganglionic caudate cells. That each ganglion thus becomes a nervous centre in its own sphere, receiving, transmitting, originating, and reflecting impressions, on which the functions and nutrition of organs depend.

Experiments and observations are next adduced to prove that the sympathetic has little or nothing to do with the motions of the iris; but that these actions depend upon the third cerebral nerve, and the fibres proceeding from the regio cilio-spinalis of Wagner and Ruiter.

Dr. Meryon then enters into the inquiry relative to the special function of each different form of nerve-fibre respectively, which goes to or proceeds from every ganglionic centre; and, from many experiments and cases, he shows that the motor fibres which proceed from each ganglion, having their terminal fibres extending to the most minute arterioles, give an impetus to the blood current, and are subservient to the functions of the secretory tissues. That the sensory fibres communicate an organic or vital sense to the secretory glandular tissues, just as the muscular sense is conferred on, and conveyed from, the muscles to the nervous centres, to communicate a stimulus to muscular action; that, in fact, the sensitive nerves affect the histological tissues, without operating *immediately* upon the bloodvessels. Finally, that the fibres of Remak—or the sympathetic fibres proper—having a correlative ramification with the motor fibres, regulate the stream of nutriment which is conveyed by the arterioles into the cell-territory for secretion and nutrition. This latter function is effected by the restraining or inhibitory attribute of the fibres of Remak.

On these views Dr. Meryon proposes, in a future paper, to suggest a system of rational therapeutics, founded upon the properties which many medicines are known to possess, of inducing, through the influence of the vaso-motor nerves, the contraction or dilatation of bloodvessels.—*Lancet*, July 16th, 1870.

2. *Rapidity of the Absorption of Carbonic Oxide by the Lungs.*—M. Claude Bernard presented to the Academy of Sciences for M. Gréhant a note on this subject. The author reports some experiments which he has recently performed on dogs, from which it results that an animal which respires air containing

one-tenth of carbonic oxide—a highly toxic mixture—the arterial blood between the tenth and twenty-fifth second, is found to contain 4 per cent. of carbonic oxide and less oxygen than normal blood (14.6 per cent.); and between one minute and fifteen seconds and one minute and thirty seconds, a very large proportion of carbonic oxide is found in the blood (18.4 per cent.), and the oxygen is very greatly diminished (4 per cent.).—*Archiv Gén. de Méd.*, Aug. 1870.

3. *Physiological Action of Carbonic Acid.*—Dr. LEVEN publishes (*Archives de Physiologie*, No. 1, 1870, p. 177) the following results of an investigation into the physiological action of carbonic acid. 1. Whether respired in the pure state or mixed with a certain proportion of air, it does not excite any convulsive action. 2. After absorption, it acts directly on the muscular fibres of the heart, modifying their chemico-physical and physiological properties, and destroying their contractibility. 3. It has no action on the blood-globules, nor on the bloodvessels. 4. It "stupefies" the brain and the medulla oblongata: the stupefaction of the brain manifesting itself by suspension of its functions—of intelligence, sensibility, and voluntary movement; that of the medulla oblongata, by arrest, succeeding impairment, of the respiration and circulation. 5. The reflex function of the spinal cord and the functions of the nerves are unaffected by this gas, and the contractibility of the muscles is likewise uninjured. 6. By the suspension of the functions of the brain, and of the medulla oblongata a condition of death-like sleep is produced, which can be removed only if it has existed for a certain limited period, varying with the species and age of the animal; and oxygen is the only substance that is capable of awakening the brain and the medulla oblongata from this death-like sleep. 7. If, by a proper mixture of carbonic acid and air, death is gradually produced (for example in about half an hour) the temperature of the body diminishes nearly two degrees centigrade, the diabetes supervenes. Sugar is found in large quantity in the blood and viscera; and in the rabbit the urine yields nearly 10 grammes of sugar to the litre. 8. Oxygen and carbonic acid produce contrary effects. The former excites the cardiac contractions, reddens the blood-globules, gives life to the brain-cells, stimulates the medulla oblongata, and acts peculiarly as a nourishing and vivifying gas; the latter, on the other hand, is a true poison, it is a gas that kills by destroying the physiological properties of heart, brain, and medulla oblongata, and it is necessary that it should be continually eliminated. Dr. Leven's experiments were made on rabbits, cats, and guinea-pigs; to whom the gas was administered either pure or mixed with definite proportions of atmospheric air, and either by inhalation during ordinary respiration or by introduction into the trachea through an artificial opening.—*Journ. Anat. and Phys.*, May, 1870.

4. *Action of Chloroform on the Colour of the Blood.*—We abstract the following interesting observations on the action of chloroform from Professor PAUL BERT's *Leçons sur la Physiologie Comparée de la Respiration*, 1870 (p. 137). The numerous authors who have written on the action of anæsthetics are not agreed as to the influence these substances exercise on the colour of the blood. According to some, the blood retains its normal colour; according to others, it becomes black in the veins, and even in the arteries its hue is much darkened. The latter opinion has originated the idea that the anæsthesia of chloroform is in reality a state of asphyxia. When an animal is submitted to the influence of an anæsthetic a period of excitement is in the first place produced. It has been already shown that this excitement, in the case of animals with low intelligence, is due to an irritation of the facial and buccal mucous membranes by the anæsthetic vapours; in animals of higher intelligence, such as man and certain dogs, it is, however, also due to delirium, originating undoubtedly in abnormal cerebral sensations (see *Journal of Anatomy and Physiology*, Nov. 1867, p. 185). It is during this period, when violent movements occur, that the venous blood becomes black; and if it last long, and especially if it be accompanied with embarrassed respiration, the colour of the arterial blood may also become dark. Succeeding this stage of excitement, however, is one of resolution, during which the arterial blood becomes bright red, and even the

venous blood may now be of a marked rose colour. If the quantity of chloroform is gradually increased, the animal dies; in which case asphyxia and not syncope has been caused, and the arterial blood assumes a black hue such as that of ordinary asphyxia. Bert has analyzed the blood drawn during the period of complete chloroform resolution, and contrasted the results with blood drawn before the administration. In one case, before anæsthesia, the blood contained, in 100 parts, 7.3 per cent. of oxygen, and during the period of resolution 12.4 per cent. In another case, 15.1 per cent. of oxygen before, and 18 per cent. during resolution. Thus, during the *uncomplicated action* of an anæsthetic, the blood is more rich in oxygen than during the normal condition. It is therefore erroneous to regard anæsthesia as a state of asphyxia.—*Journ. Anat. and Phys.*, May, 1870.

5. *Production of Bone from Medulla.*—An interesting "provisional communication" appears in No. 24 of the *Centralblatt*, from the pen of M. Baikow, on the effects of transplantation of medulla. M. Baikow made two series of experiments. In one set, which were thirty-eight in number, the medulla from the femur or tibia of a dog was placed under the skin of the back of another dog; whilst in a second set, twenty-eight in number, the marrow was inserted beneath the skin of the back of the same individual. The first set of experiments all failed; bone was formed in none. In the second set fourteen cases succeeded, *i.e.*, bone was actually formed; whilst in the remaining six cases the changes that occurred in the early stages were followed. The remaining eight cases were unsuccessful. In the fourteen successful cases bony masses were found in various stages of development, from the earliest rudiments to complete formation, with Haversian canals, lamellæ, stellate lacunæ, and medullary cavities filled with medulla. Up to the present time, M. Baikow's experiments extend only to the seventy-sixth day. In one case, at the sixty-first day, not only was complete bone present, but fibro-cartilage. The results of examinations showed that the medulla, after transplantation, first passed into the condition of fibrous tissue, from which, by the proliferation of the cellular elements, bone or cartilage was developed. M. Baikow's results are in opposition to those of M. Ollier, but corroborate those of M. Goujon.—*Lancet*, July 16th, 1870.

6. *Pre-pubic Lymphatic Gland.*—M. Durac directs attention, in the *Gazette Méd.-Chir. de Toulouse*, April, 1870, to a lymphatic gland situated just in front of the pubes, and at the root of the penis. This gland, he considers, has not been described; and probably forms the starting point of inflammatory swellings, either specific or not, which have been observed in that region. The author has noticed this gland to become enlarged and indurated in a syphilitic patient. He has, moreover, published in a number of the same journal for last year a case of pre-pubic abscess, which, probably, was connected with suppurative inflammation of the gland alluded to.—*Lancet*, July 23, 1870.

7. *Kryptophanic Acid.*—At a recent meeting of the Chemical Society Dr. Thudichum described a new organic acid—kryptophanic acid, the presence of which he considers the cause of the acid reaction usually exhibited by urine.

It is extracted somewhat as follows: "The urine is rendered alkaline with milk of lime and filtered; it is then acidified with acetic acid and evaporated down to a syrup; after standing some time, the syrup is drained from the crystalline deposit and is mixed with strong alcohol. On shaking, a dark-coloured precipitate forms, from which the fluid is decanted.

"The precipitate, which is the impure calcium salt, is washed with alcohol, dissolved in a small quantity of water, and filtered through calico. On again adding alcohol, it is re-precipitated. By repeated solution and re-precipitation in this way it may be obtained nearly pure.

"To complete the purification, the calcium salt is dissolved in water, mixed with solution of lead or copper acetate, the liquid filtered from the impure basic salt, and the clear solution mixed with alcohol. Pure lead or copper kryptophanate is then precipitated. To obtain the acid, the lead salt may be decomposed with an equivalent quantity of dilute sulphuric acid, or the copper salt by sulphuretted hydrogen.

"The acid is a colourless gummy mass, soluble in water; it decomposes carbonates with effervescence. The aqueous solutions of the earthy salts give, amongst other reactions, with mercury nitrate, a voluminous white precipitate. The ordinary estimation of urea by Liebig's process is thus shown to be liable to errors, and to require a correction for kryptophanic acid, which has probably increased all values for urea from 5 to 10 per cent. Kryptophanic acid may be considered a dibasic acid of the formula $C_5H_9NO_5$; or it may be represented as tetrabasic with the formula $C_{10}H_{18}N_2O_{10}$. In that case, the metallic salts, of which a considerable number are described in the original paper, will have the general formula $C_{10}H_{14}M'_4N_2O_{10}$. Many of the salts are soluble in water, but some, as those of silver, lead, and mercury, are insoluble."—*The Druggists' Circular*, Sept. 1870, from *The Pharmaceutical Journal.*

MATERIA MEDICA, GENERAL THERAPEUTICS AND PHARMACY.

8. *Experiments on the Effects of Alcohol (Ethyl Alcohol) on the Human Body.* By E. A. PARKES, M.D., F.R.S., Professor of Hygiene in the Army Medical School, and Count CYPRIAN WOLLOWICZ, M.D., Assistant Surgeon, Army Medical Staff.

As a knowledge of the physiological effects of alcohol on the human body is a matter of great importance, and as previous observations leave some points in doubt, we took the opportunity which the willingness and zeal of a very intelligent healthy soldier afforded us of investigating this subject. In order not to lengthen the paper, we have given only our own observations, without referring to those of others.

The plan of observation was as follows: For twenty-six days the man remained on a diet precisely similar as to food and times of meals in every respect, except that for the first eight days he took only water (in the shape of coffee, tea, and simple water); for the next six days he added to this diet rectified spirit, in such proportion that he took, in divided quantities, on the first day one fluidounce (= 28.4 cub. centims.) of absolute alcohol; on the second day two fluidounces; on the third day four ounces; and on the fifth and sixth days eight ounces on each day. He then returned to water for six days, and then for three days took on each day half a bottle (= 12 ounces, or 341 c. c.) of fine brandy, containing 48 per cent. of alcohol. Then for three days more he returned to water.

There were thus five periods, viz., of water-drinking, alcohol, water, brandy, water.

Before commencing the experiments, the man, who had been accustomed to take one or two pints of beer daily, abstained altogether from any alcoholic liquid for ten days.

This man, F. B., is twenty-eight years of age, 5 feet 6 inches in height, and his usual weight is 134 or 136 lbs. He is finely formed, with little fat, and with largely developed powerful muscles; he has a clean smooth skin, a clear bright eye, good teeth, and is in all respects in perfect health. He is very intelligent, and assisted us so much that we are quite certain that there has not been a mistake even for a minute in the time of taking the temperatures and passing the urine. As he had always been accustomed to smoke, we thought it proper to allow him half an ounce of tobacco daily, for fear the deprivation of it might disturb his health.

In addition to the experiments recorded in this paper, we tested the accuracy of his vision, and the muscular power before and during the use of alcohol; but as we could not detect any difference, we do not give the experiments.

Our object being to test the dietetic effects of alcohol, we gave it in small and large quantities, but avoided producing any extreme symptoms of narcotism. * * *

General Conclusions.

1. One and two fluidounces (28.4 c. c. and 56.8 c. c.) of absolute alcohol given in divided quantities in 24 hours to a perfectly healthy man seemed to increase the appetite. Four fluidounces lessened it considerably; and larger quantities almost entirely destroyed it. On the last day of alcohol the man was three-quarters of an hour eating 8 ounces of bread, and could hardly do so. Had he been left to his own wishes the amount of food taken would have been much diminished.

It appears, therefore, that in this individual some point near 2 fluidounces of absolute alcohol is the limit of the useful action on appetite; but it is possible that if the alcohol had been continued a smaller quantity would have lessened the appetite.

In other healthy persons it may be different from the above; in most cases of disease, when digestion is weakened, it seems probable that a much smaller amount of alcohol would destroy appetite.

2. The average number of beats of the heart in 24 hours (as calculated from 8 observations made in 14 hours), during the first or water period, was 106,000; in the alcoholic period it was 127,000, or about 21,000 more; and in the brandy period it was 131,000, or 25,000 more.

The highest of the daily means of the pulse observed during the first or water period was 77.5; but on this day two observations are deficient. The next highest daily mean was 77 beats.

If instead of the mean of the 8 days or 73.57 we compare the mean of this one day, viz. 77 beats per minute, with the alcoholic days, so as to be sure not to overestimate the action of the alcohol, we find:—

On the 9th day, with 1 fluidounce of alcohol, the heart beat 4300 times more.
On the 10th day, with 2 fluidounces, 1872 times more.
On the 11th day, with 4 fluidounces, 12,960 times more.
On the 12th day, with 6 fluidounces, 30.672 times more.
On the 13th day, with 8 fluidounces, 23,904 times more.
On the 14th day, with 8 fluidounces, 25,488 times more.

But as there was ephemeral fever on the 12th day, it is right to make a deduction, and to estimate the number of beats in that day as midway between the 11th and 13th days, or 18,432. Adopting this, the mean daily excess of beats during the alcoholic days was 14,492, or an increase of rather more than 13 per cent.

The first day of alcohol gave an excess of 4 per cent., and the last of 23 per cent.; and the mean of these two gives almost the same percentage of excess as the mean of the 6 days.

Admitting that each beat of the heart was as strong during the alcoholic period as in the water period (and it was really more powerful), the heart on the last two days of alcohol was doing one-fifth more work.

Adopting the lowest estimate which has been given of the daily work done by the heart, viz., as equal to 122 tons lifted one foot, the heart during the alcoholic period did daily work in excess equal to lifting 15.8 tons one foot, and in the last two days did extra work to the amount of 24 tons lifted as far.

The period of rest for the heart was shortened, though perhaps not to such an extent as would be inferred from the number of beats; for each contraction was sooner over.

The heart on the fifth and sixth days after alcohol was left off, and apparently at the time when the last traces of alcohol were eliminated, showed in the sphygmographic tracings signs of unusual feebleness; and perhaps in consequence of this, when the brandy quickened the heart again, the tracings show a more rapid contraction of the ventricles, but less power than in the alcohol period. The brandy acted, in fact, on a heart whose nutrition had not been perfectly restored.

The peripheral circulation was accelerated and the vessels were enlarged and the effect was so marked as to show that this is an important influence for good or for evil when alcohol is used.

Referring only to this healthy man, it is clear that the amount of alcohol the heart will bear without losing its healthy sphygmographic tracing is small, and it must be supposed that some disease of heart or vessels would eventually follow the overaction produced by large doses of alcohol.

3. Although large doses of alcohol lessened appetite, they did not appear to impede primary digestion, as far as this could be judged of by the sensations of the man; nor did they seem to check the normal chemical changes in the body which end in the elimination of nitrogenous excreta, of phosporic acid and of free acidity. In other words, we were unable to trace either the good or the evil ascribed to alcohol in this direction: it neither depressed these chemical changes nor obviously increased them; it neither saved the tissues nor exhausted them; and even in the period of ephemeral fever its effects were negative.

But, of course, in these experiments we were not dealing with diseased tissues, nor with structures altered in composition by long-continued excess of alcohol. The results in such cases might be different; and it may be desirable to repeat that though appetite was lessened, the amount of food taken was the same each day.

4. Neither pure alcohol nor brandy, in the quantities given, lessened the temperature; in other words, they did not arrest the chemical changes which produce animal heat, or lessen the processes which regulate its amount, any more than they influenced nitrogenous tissue-change. Alcohol in no way influenced the rise of temperature during the attack of ephemeral fever; it neither lowered nor increased it. This appears to us conclusive against the proposal to use alcohol as a reducer of febrile heat.

On the other hand, it is not clear that alcohol increased the temperature: it produced subjective feelings of warmth in the stomach, in the face, round the loins, and over the shoulders; but at the time when these were felt (for about one hour after tolerably large doses) the thermometer in the axilla and rectum showed no rise. This is best seen by comparing the two o'clock observations, which were taken about half an hour after dinner. The feelings result from the enlargement of the vessels and the greater flow of blood through them; so, also, the ephemeral fever was decidedly not made worse by it.

5. An effect on the nervous system was not proved by any evidence of increase or decline in the amount of phosphoric acid; but there were marked subjective feelings; and possibly also the increased action of the heart was a nervous condition, as the short contractions of the ventricle were like those ascribed to alterations in the nervous currents. The feelings which were produced by four fluidounces daily, and in a still higher degree by the larger quantities of alcohol, proved that narcotism was produced. There was no exhilaration, but a degree of heaviness, indisposition to exertion, and loss of cheerfulness and alacrity; there was slight headache, and even some torpor and sleepiness. All these effects were more marked with brandy. The commencement of narcotism was therefore produced in this man by some quantity much less than 4 fluidounces, and probably nearer 2. It was nearly this amount which also commenced to destroy the appetite; and it may also be observed that a considerable rise in the frequency of the pulse occurred on the third day of alcohol, when 4 ounces were taken, whereas on the days with one or two ounces the pulse, though quickened, was so in a much less degree.

Putting therefore these points together, viz., that the obvious effect on the nervous system (*i.e.*, narcotism), the loss of appetite and a great rise in the quickness and frequency of the heart's beats occurred at the same time, it seems fair to conclude that there must be a relation between the phenomena, or, in other words, that all were owing to nervous implication.

It appears, then, clear, that any quantity over two ounces of absolute alcohol daily would certainly do harm to this man; but whether this, or even a smaller quantity, might not be hurtful if it were continued day after day, the experiments do not show. It is quite obvious that alcohol is not necessary for him; that is, that every function was perfectly performed without alcohol, and that even one ounce in twenty-four hours produced a decided effect on his heart, which was not necessary for his health, and perhaps, if the effect continued, would eventually lead to alterations in circulation, and to degeneration of tissues. It is not difficult to say what would be excess for him; but it is not easy to decide what would be moderation; it is only certain that it would be something under two fluidounces of absolute alcohol in twenty-four hours.

It will be seen that the general result of our experiments is to confirm the opinions held by physicians as to what must be the indications of alcohol both in health and disease. The effects on appetite and on circulation are the practical points to seize; and if we are correct in our inferences, the commencement of narcotism marks the point when both appetite and circulation will begin to be damaged. As to the metamorphosis of nitrogenous tissues or to animal heat, it seems improbable that alcohol in quantities that can be properly used in diet has any effect; it appears to us unlikely (in the face of the chemical results) that it can enable the body to perform more work on less food, though by quickening a failing heart it may enable work to be done which otherwise could not be so. It may then act like the spur in the side of a horse, eliciting force, though not supplying it.

The employment of alcohol in health and disease is so great a subject that we should have felt tempted to extend these remarks to some points of medical practice, had it been desirable to do so in this place. We will only say that while we recognize in these experiments the great practical use of alcohol in rousing a failing appetite, exciting a feeble heart, and accelerating a languid capillary circulation, we have been strongly impressed with the necessity for great moderation and caution. In spite of our previous experience in the use of alcohol and brandy, we were hardly prepared for the ease with which appetite may be destroyed, the heart unduly excited, and the capillary circulation improperly increased. Considering its daily and almost universal use, there is no agent which seems to us to require more caution and more skill to obtain the good and to avoid the evil which its use entails.

We wish to guard ourselves against the supposition that in speaking of alcohol and brandy we refer at all to wine and beer, which contain substances, in addition to alcohol, which may make their action in nutrition somewhat different.—*Glasgow Med. Journ.*, Aug. 1870, from *Proceedings of Royal Society*, No. 120.

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9. *On the Place of Wines in the Diet of Ordinary Life.*—The *Practitioner* contains some interesting articles "on the dietetic and medicinal uses of wines," by the Editor and Staff. The following are given as a summary of the points desired to be inculcated as to the place of wines in the diet of ordinary life:—

"1. Wines for daily use by healthy adults should not, on the average, contain more than ten per cent. absolute alcohol; eight or nine per cent. is better.

"2. If wine be used as the daily drink, it is best, so far as may be, to use only one kind at a time, and no other form of alcoholic liquid.

"3. Sound natural wines are to be obtained at the best economic advantage from the Bordeaux district; the red wines are to be preferred.

"4. Rhine wines (white) are equally excellent, but more expensive.

"5. Hungarian wines are also, in many instances, excellent, but are at present too dear for daily use except by the rich. They are also unequal in quality, owing to defects of manufacture.

"6. Greek wines labour under the same defects; the latter, especially, in an aggravated degree.

"7. The fortified wines, as a class, develop no proper vinous qualities till they have been some years in bottle. Sherry, however, is greatly superior to the other wines of this class, in the rapidity with which it develops the volatile ethers.

"8. Fortified wines in small quantities, especially sherry, for the reason just named, are the appropriate stimuli of certain kinds of infantile and youthful debility, and of the enfeebled nervous system of old persons. * * *

"From the time of puberty onwards, there arises a much greater susceptibility to the injurious influences of alcohol upon the emotions and the character; and between the date of puberty and the age of twenty-five, or even thirty, it would be better, in ordinary cases, either to abstain altogether, or to limit the allowance to one-third or one-half the amount above named. Still, there can be no question that to many rapidly-growing lads an amount of alcohol (preferably as beer) strictly limited to these latter quantities is not only harmless but most actively useful."

10. *Mode of Action of Conia.*—Drs. DYCE BROWN, and ALEXANDER DYCE DAVIDSON have recently been experimenting with this drug (see *Medical Times and Gazette*, July 9, 1870). The results obtained by them agree with Dr. Harley's (see number of this Journal for July, 1869, page 158), and they conclude, with him, that the chief action of conia is that of a paralyzer of the cranial motor centres in the first place, and, secondly, of the spinal centres, and not of the peripheral extremities of the motor nerves, as is maintained by Kölliker and Guttmann.

11. *Physiological Action of Tobacco.*—In discussing the principles of the treatment of asthma by tobacco, Professor SÉE (*Bulletin Génér. de Therapeutique*, 15 Novembre, 1869, p. 385) mentions several important facts in relation to the physiological action of this remedy. One of its leading characteristics is the readiness with which tolerance to its action may be produced. Many observations have established this, among the most striking of which is that of Professor Traube, who found that while a small dose of nicotia given for the first time to a dog caused marked cardiac symptoms, the same dose administered a few hours afterwards was completely inert. Sée points out that, in reference to their power of producing tolerance, medicines may be divided into three groups: in the 1st, tolerance is decidedly produced, often almost immediately, as happens conspicuously with tobacco, and less so with opium, belladonna, Indian hemp, and arsenic; in the 2d, in place of tolerance, cumulative effects result, as with digitalis and strychnia; and in the 3d the effects are exactly proportional to the dose given, however frequently it may be repeated, as occurs with bromide and cyanide of potassium, etc. In reference to the influence of tobacco-smoking on the mental activity, it is asserted that a moderate indulgence produces a certain degree of cerebral excitation and facilitates mental work; but the abuse of this habit diminishes the mental vigour. Tobacco augments the secretion of the gastric and intestinal glands, and hence aids digestion; and it also acts as a diuretic. The action on the different organs appears to vary greatly with the dose. Thus, a small dose accelerates the heart's pulsations by direct excitation of the intra-cardiac ganglia; a somewhat large dose reduces the rate of the pulsations; and a lethal dose completely arrests the action by powerfully stimulating the vagi nerves. The evil effects of excessive tobacco-smoking are elaborately treated of in a memoir by Dr. A. Blatin (*Recherches Physiologiques et Cliniques sur la Nicotine et le Tabac*, Paris, 1870) which likewise includes an able investigation into the physiological action of nicotia. Dr. Kopf also contributes a paper on the same subject (*De la Nicotine, Thèse de Strasbourg. Gazette de Strasbourg*, 1870; and abstract in *Bull. Génér. de Therap.*, 30 Mars, 1870, p. 284).—*Journ. Anat. and Phys.*, May, 1870.

12. *Anæsthetic Properties of Carbolic Acid.*—Mr. ERASMUS WILSON, Prof. of Dermatology in the Royal College of Surgeons, England, relates (*Journal of Cutaneous Medicine*, June, 1870) the case of an officer who was troubled with disease of the glans and prepuce, for the removal of which the Professor thought it necessary to make applications of equal parts of potassa fusa and water. This application was excessively painful and the cure was protracted. The patient's power of supporting further pain became exhausted. "There were reasons," Prof. W. says, "why chloroform could not be employed; local anæsthesia had, possibly from mismanagement, complicated the difficulty, and I was beginning to feel a little puzzled for the means of attaining my object, when it occurred to me to attempt to conquer the morbid irritability of the part

by means of carbolic acid. It may be premised that in consequence of this dread of pain, I had left the application of the caustic to the patient himself, merely encouraging him to proceed, and pointing out the spots which he should principally attack; and when I suggested, after some minutes of agony, that he should touch the raw surface with carbolic acid, he shrunk from the proposal, having on several occasions used it before, and found it very painful. Nevertheless, the occasion was pressing, and he brushed the surface with carbolic acid, and was gratified by finding that he could do so without suffering. The carbolic acid exercised its usual effect of coagulating the albumen of the surface, and producing a white film; and after repeated applications the film had reached a considerable thickness. Now was the time for the renewal of the original caustic, and after some hesitation it was applied; but, to the patient's astonishment and my own satisfaction, with an almost painless result. The caustic, which a few minutes before was utterly unendurable, could be used now, and with perfect freedom—almost without inconvenience. We followed up our discovery, and left very little of the surface for future operation.

"This anæsthetic property of carbolic acid was not altogether new to me; but I had never before seen its power so strikingly manifested. I have used it often since, and always with the most satisfactory result; and I employ it at present, very commonly, previously to the application of caustic to lupus and epithelioma. It benumbs the surface, it dulls the excessive sensibility of the superficial nerves, and it thereby permits the caustic action of our remedies, with a great reduction in the amount of pain. It admits, I have no doubt, of more extensive application, and will, I have reason to believe, come into general use for a similar purpose."

[Dr. J. H. Bill, Surgeon U. S. A., at present stationed at Fort Vancouver, W. T., communicated to us several months since, experiments made by him which demonstrate far more remarkably than the above the anæsthetic property of carbol. See his interesting paper in this No. of this Journal.—Ed.]

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13. *Lactate of Iron.*—Mr. Jas. C. Dickinson extols (*Lancet*, Aug. 20, 1870) the use of this remedy in anæmia, general debility, leucorrhœa, hypertrophy of the spleen, for boils, and as a prophylactic against malarious fevers. He says, "it possesses all the properties of the other preparations of iron; as a blood-restorer it is a very effectual remedy; it does not produce constipation, is almost devoid of any disagreeable taste, and in most cases rapidly restores the appetite. As it possesses scarcely any astringency, it may be given when the stomach will not bear the more styptic preparations of iron.

"Messrs. T. Bell & Co., of Oxford Street, have on several occasions prepared for me the syrup, and it possesses all properties I have ascribed to the lactate in this paper.

"The dose for an adult is a teaspoonful, gradually increased to two, taken either in water or soda-water; and for children half a teaspoonful twice a day, and gradually increased according to age."

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14. *Medicinal Pepsin.*—The very different reports made by physicians as to the value of this article, led Mr. R. V. Tuson to suspect that this difference resulted from the variation in the quality of the article, as prepared by different makers. He instituted accordingly a number of experiments with pepsin, from different manufacturers, and found them to vary in their digestive and other qualities. The result, he states (*Lancet*, Aug. 13, 1870), of nearly three hundred experiments upon albumen and fibrin, proves that the pepsin prepared by Messrs. Bullock and Reynolds, Hanover Street, Hanover Square, is superior in quality to that of any of the other makers he has tried.

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15. *New Vesicant.*—M. Delpech draws attention to the fact that the emplast. vesicatorium of the French, Prussian, and other Pharmacopœias, has the disadvantage that the proportion of the active material cantharidin is very variable, that the presence of any oily substance facilitates the absorption of a dangerous poison; and lastly, that the resin is an unnecessary cutaneous stimulant, whilst it renders the smell of the plaster very unpleasant. An excellent vesicant,

which possesses none of these disadvantages, exists in the combination made by Dragendorff and Massing of cantharidin with alkalies. M. Delpech employs the cantharidinate of potash, which is very volatile, and possesses in a high degree the blistering power; from an alcoholic solution of cantharidin containing 2 grammes in 150, about 1.6 grammes fall on the addition of a concentrated solution of alkali of a precipitate which is absolutely insoluble in water. The best formula for the application of the preparation is gelatine 2.09, water 10, alchohol 10, cantharidinate of potash 0.20, and glycerine 9.5. The mass should be equably spread on a thin layer of gutta-percha, so that each square inch should contain a definite proportion of the salt; it may of course be made stronger or weaker at will.—*Practitioner*, Aug. 1870, from *Centralblatt*, No. 27.

16. *Report of the Committee of the Royal Medical and Chirurgical Society appointed to investigate Bain's and Pacini's Method of restoring Suspended Animation.*—The means adopted by the committee for pursuing the inquiry were by experiment upon the dead human body; and in order to test the relative merits of the methods proposed, they were contrasted with the plan adopted by Dr. Silvester. Details of a large number of observations were given in the report. The conclusions at which the committee arrived from these observations might be summed up as follows. It appeared that more air is introduced, as a rule, by traction from the shoulders than from the forearms and arms. Nevertheless, in the amount of air introduced, there is a greater difference when the same method is adopted with different bodies than there is between the two plans when practised upon the same body; this great difference being chiefly due to the size of the body, especially the amount of fat, the mobility of the walls of the chest, and the rigidity of the muscles. By either plan, the committee were of opinion that a sufficiently large quantity of air is without difficulty introduced. And it might be observed that in either case, on an average, more air is changed than in the act of ordinary tranquil respiration. In estimating the relative merits of the two plans, they were anxious to observe that other considerations are involved than that of the absolute and comparative quantity of air changed. They were unanimously of the opinion that the method advocated and practised by Dr. Bain was but a modification of the plan usually known as Silvester's, and involved no new principle of action. Indeed, in his more recent publications, Dr. Silvester had not limited his point of traction to any one part in particular of the forearm or arm. They were therefore of opinion that, in the great majority of cases, it is of comparatively little moment which method of manipulation is practised, provided the common principle on which both are founded be fairly carried out.—*British Medical Journal*, July 30, 1870.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

17. *Revaccination.*—The importance of revaccination has now become fully recognized by the highest authorities in the profession; but, unfortunately, it is not recognized by the public.

M. Depaul, on behalf of a committee of the Academy of Medicine, appointed to reply to a request made by the Minister of the Interior, for the opinion of that learned body, as to the value of revaccination, read the following, which was adopted:—

"The Academy of Medicine believes it to be useful to make public the following declaration, which it commends to the attention of the government and of the public.

"Vaccination is a preservative from smallpox.

"Nevertheless, after a certain period, revaccination is indispensable to assure complete immunity against contagion.

"Revaccination is absolutely exempt from danger. The Academy formall repudiates all that has been said and published to the contrary.

"Revaccination may be useful at all ages.

"It may be performed without inconvenience during the prevalence of an epidemic. Moreover, it is certain that, in small localities, in families, boarding-houses, or in collections of persons, it will effectually arrest a commencing epidemic.

"The existing epidemic in Paris and other places has furnished the most convincing proofs of the preservative power of revaccination.

"In different army corps, and especially in the Garde de Paris, in many public and private establishments, and in some of the municipal schools, variola has been arrested by revaccination. Finally, the latest statistics, particularly those from the civil hospitals of Paris, prove most positively that very few revaccinated persons are attacked with smallpox, and that of those who were none died.

"It is then of the utmost importance, for the interest of individuals and of the public, to encourage, by every possible means, the practice of revaccination."—*Révue de Thérapeutique Médico-Chirurgicale*, July 15, 1870.

The following statement from the *Lancet* (June 25, 1870) fully confirms the above view:—

"At the smallpox hospital (London) every nurse is revaccinated before entering on her duties; and, during thirty-four years, not one of these nurses has contracted smallpox. Some years ago, when the new smallpox hospital was built, and when many workmen were regularly employed there for several months after patients were received, the great majority of these workmen, who submitted to revaccination, entirely escaped smallpox, while two cases of the disease did occur among the few who were not revaccinated. Reasoning, not from theoretical considerations, but on the broad and firm ground afforded by large practical experience, Dr. Seaton advises that every child should be revaccinated at or about the age of puberty, or still earlier when smallpox is prevalent, or when the original vaccination was imperfect; and that the revaccination should be from arm to arm, and performed with the greatest possible care."

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18. *Anosmia.*—The *Archives Générales de Méd.* for April last contains some interesting researches by Dr. Notta, on the loss of the sense of smell. The author has collected twenty-four cases of this affection and from the data which the study of these cases furnishes it is evident that anosmia may result from very different causes.

It may be congenital, and due to an absence of the olfactory nerves.

It may be only a symptom of a more serious disease, as of a cerebral tumour, exostosis, or caries of the frontal bone, which produces the destruction, compression, or alteration of the first pair of nerves.

It may result from atrophy of the same nerves.

In other cases in which it constitutes the sole disease, Dr. N. proposes to term it essential, inasmuch as it occurs without appreciable cause.

It may be a sequel of falls on the head, complicated or not with fracture of the cranium, and then Dr. N. terms it traumatic.

It supervenes sometimes to a coryza either more or less prolonged or complicated with influenza, sometimes to repeated attacks of coryza.

Finally, it may occur from external causes independent of the condition of the nerves, as absence of the nose, contraction of the nasal fossæ, and polypus of the nose.

The loss of smell manifests itself differently, according to the cause which produces it. Sometimes, as in atrophy of the olfactory nerves, or as the sequela of repeated coryzas, it comes on slowly and becomes complete only after a lapse of years. Sometimes, when occasioned by an injury, or by a strong impression on the olfactory nerve, as in the case related by Graves, it may occur suddenly.

Physiologists inform us that the taste of certain articles may be perceived independently of the sense of smell, such as sugar, salt, acid, sweet, bitter; on the contrary, the integrity of both senses is necessary to enable us to distinguish others, such as the flavour and the aroma of food and drinks. Most of the observations collected by Dr. N. confirm this, but there are many exceptions to this law and in which the sense of taste was preserved, while that of smell was completely abolished. Such cases have occurred under very different conditions—in one case after anosmia from a fall on the head, in another where it was consecutive to a coryza complicated with influenza, once after repeated coryzas, and finally, in a case of polypus of the nasal fossæ. Dr. N. does not seek to explain this anomaly, but is satisfied in pointing out what was well known before, that pathological facts and experimentation do not always lead to exactly the same results.

The duration of anosmia varies with the cause which produces it. When anosmia results from atrophy of olfactory nerves, or those nerves are destroyed by a tumour, it is incurable. But when it is caused by injury or by coryza, although it may be permanent, in numerous cases the sense has been recovered after a period varying from three weeks to seven months.

As to the treatment of this affection Dr. N. has not been able to throw any light on the subject. He has tried veratria, sternutatory powders, etc., without the least benefit; and where recovery has taken place it has been due to the powers of nature.

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19. *Mucous Disease.*—Dr. WALTER WHITEHEAD, of Manchester, read a paper on this disease, at the late meeting of the British Medical Association. Though noticed by some of the ancients, and described by a few more modern medical writers, it has received only occasional recognition in our best standard medical works.

This disease is characterized by the secretion of mucus of an abnormal composition on mucous surfaces, in which condition the mucus is prone to consolidate into masses, shreds, or tubular casts. These secretions form and exfoliate periodically, each exfoliation being critical and immediately followed by an amelioration of the symptoms which aggravate it up to this point. This critical period is accompanied by pains of a spasmodic character and of variable intensity. The subjective symptoms are those of a most distressing nervous nature. The disease, read in accordance with modern research, may be formulated as follows: 1. The proximate cause of the symptoms referable to this disease is the hypersecretion and accumulation of mucus on the free surface of the mucous membranes; such accumulations sheathe and prevent the healthy performance of the functions natural to the part, and thus induce immediate and remote results, the effects of such suppressed functions. 2. That this hypersecretion indicates a want of balance between nerve-force and germinal matter. 3. That the nerve-force is perverted by irritation. 4. That the exciting causes are numerous. 5. That it is a character of mucous secretions under the influence of irritation for its cell elements to increase, and its viscidity to diminish. 6. And that, in the disease in question, the prolific cell-formations become entangled in the albuminous fluid in which they are found, and present the membranous structures before referred to. The principal points in the treatment are as follows: 1. Discover and counteract any cause either in direct contact or in the immediate vicinity of the secreting surface which can be traced as a source of irritation. 2. Reinvigorate the strength, and allay the nervous irritability. 3. Remove the accumulated mucus. 4. Prevent, by topical application, its reformation. Such is a sketch of a disease, most serious in its import to the patient, and of far from unfrequent occurrence. True, the treatment is still in its tentative stage, but we are clearing the way for sounder views on the subject, by accurately laying down the causes and symptoms of a malady which one cannot doubt is constantly mistaken for one of the hydra forms of dyspepsia, and by the erroneous treatment resulting from this mistake, the first or curative stage of the disease is allowed to pass into the latter and more lethal forms.—*Lancet*, Aug. 20, 1870.

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20. *Stertor, its Pathology and Treatment.*—In a paper by Dr. R. L. BOWLES, communicated to the Royal Medical and Chirurgical Society by Mr. Cæsar

Hawkins, the definitions of the three forms of stertor (palatine, pharyngeal, and mucous stertor) treated of in vol. xlviii. of the *Medico-Chirurgical Transactions* are referred to, as well as a "laryngeal stertor" in chloroform poisoning spoken of by Professor Lister. Case 1 illustrates the cessation of stertor on placing the patient on her side, a gradual improvement subsequent to this, the return of stertor and impending death when she was placed on the opposite side, the instant relief on assuming her original position, and a return to consciousness coincident with the cessation of stertor. The causes of these conditions are discussed, and cases are given illustrating the necessity of always placing the paralyzed side downwards, and of never changing it to the opposite side; for the lung of the paralyzed side becomes loaded with a mucous fluid, which gravitates to the opposite lung whenever the patient is placed with the opposite (*i. e.*, sound) side downwards, and in its passage across the trachea the mucus becomes churned up into foam by the ingoing air, causing mucous stertor, great dyspnœa, and, if not removed, death. It is shown by experiment that these conditions may be induced and removed at will in apoplectic cases, and the practical applications of these principles are pointed out. Cases are related demonstrating the successful application of these principles in respect of the removal of stertor, as well as some cases of recovery from apoplexy after the stertor has been removed. Their application also to bronchitis, convulsions, epilepsy, hæmoptysis, drowning, chloroform poisoning, and all allied conditions, is pointed out, and the following conclusions are deduced: 1st. That a "laryngeal stertor" may be added to the three forms formerly defined. 2d. That the three forms of stertor which have the most important connection with the apoplectic state are the palatine, pharyngeal, and mucous stertor. 3d. That the three varieties, whatever their remote causes, are the immediate results of a local mechanical condition, which may always and at once be changed, to the great relief of the patients, and sometimes their permanent recovery. 4th. That it is necessary to keep the patient on one side, and that the paralyzed side should be downwards. 5th. That mucus and other fluids gravitate into and fill up the lower lung, and therefore if the sides be reversed, the mucus will find its way into the opposite lung. 6th. That the fluid crossing from the large bronchi of one lung to that of the other becomes churned into foam, and causes dangerous obstruction to the respiration. 7th. That the lung is not injured by remaining inactive, and filled with mucus for a long period. 8th. That these principles apply to all conditions in which mucus or fluid exists in either or both lungs, and also to all conditions allied to the apoplectic, whether there be fluid or not.—*Medical Times and Gaz.*, July 30, 1870.

21. *Hæmophilia.*—Dr. ASSMANN, of Berlin, in his *Inaugural Dissertation*, 1869, gives an account of a number of individuals affected with irrepressible hemorrhage, who are known in popular language as *bleeders*. All belonged to the same family, the history of which Dr. A. was able to trace upwards through four consecutive generations. All of the patients, eight in number, were attacked at a somewhat early period of their infancy, and were of the male sex, all but one of mothers, of a lineage, who had never suffered from the disease. It would seem, then, that the predisposition to the form of hemorrhage referred to is transferred only to the male offspring. The repeated microscopical examinations made of the blood discharged in some of the cases referred to by Dr. A., give precisely the same results as was already announced by Grandidier—that is, about 1500 red corpuscles to every one of white.—*Centralblatt f. d. Med. Wissenschaften*, May, 1870. D. F. C.

22. *Notes of Cases of Relapsing Fever.*—Dr. CLAUD MUIRHEAD read a paper entitled as above before the Medico-Chirurgical Society of Edinburgh, and which was subsequently published in the *Edinburgh Medical Journal* for July, 1870. The author endeavours to show that contagion, rather than infection, is the means by which this disease is propagated; that the period of incubation extends from five to ten days; that the occupation of the persons seemed in no way to predispose individuals to be attacked by it; that, out of the forty cases which were admitted to the fever wards, 60 per cent. were under the age of 20;

that the number of males, as compared with females, was as four to one, and of this number about 77 per cent. were of Irish extraction. From careful and minute inquiries into the circumstances of the patients admitted into hospital with this disease, and from personal inspection and measurement of the cubic space of those houses where large numbers of them lived, combined with this important fact, that not one of these people was out of work when seized with this complaint, he felt himself warranted in concluding that *over-crowding* has quite as much to do with the generation of relapsing fever as *destitution*—infinitely more with its propagation; and, in those cases which have this year presented themselves at the Infirmary, much more to do with it as an exciting cause.

He then detailed the various symptoms presented. A decided rash was observed only in one case, resembling the eruption observed in measles, rather than that seen in typhus fever. But in many cases a very marked prominence and erection of the hair-follicles, especially over the abdomen, thorax, and thighs, was present, which continued until the sweating stage supervened. Sudamina were almost invariably met with in the second crisis, seldom or never with the first. The temperature was most carefully noted in every case, and charts were exhibited showing the rapid and sudden fluctuations observed at the critical periods. During the first paroxysm, it ranges from 102 deg., the lowest point observed, to 106.2 deg. Fah., the highest point noted; the evening temperature usually exceeding that of the morning, and sinking at the crises quite suddenly to two or three degrees below the standard of health. The lowest point noticed was 92 deg. Fah., which occurred at the crisis of the first relapse. In this case, the temperature fell no less than thirteen degrees in twenty-four hours.

The spleen was uniformly found to be enlarged; and in the only fatal case, which occurred in a man of 59, from sudden syncope, it was found stuffed with clots and coagula. The number of white blood-corpuscles was found to be largely in excess of what is observed in healthy blood; the serum appeared to be increased; the red corpuscles were altered in character, and adhered to each other in irregular masses; and little granules were observed floating in the serum. The spleen diminished very decidedly during the remission of the fever.

As to treatment, nothing was found to be of the slightest use in warding off the relapse. Quinia was tried both by Dr. Fraser and Dr. Muirhead, by the mouth and subcutaneously, in combination with iron and with nux vomica. In one case, seventy grains were given in divided doses, during the three days before the *relapse*, with no effect. In another case, 110 grains were administered during the four days previous to the expected *relapse*, by which cinchonism in all its forms was fairly induced, yet still the inevitable relapse made its appearance.—*British Medical Journal*, August 6, 1870.

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23. *Recurrent* (*Relapsing*) *Fever; Crisis and Delirium.*—Dr. Frantzel states (Virchow's *Archiv*, 1869) that, in 100 cases of recurrent fever which fell under his observation, in Fraube's Clinic, during the month of December, 1868, and up to February, 1869, in one case the disease terminated without crisis. In 4 cases the crises set in at some period during the interval between a regular and irregular day; so that it was very difficult to fix the exact time of its occurrence. In 75 cases the commencement of which was well marked by a decided chill; 47 times the crisis took place upon an irregular day (3–13), and 28 times upon a regular day (4–12): the most frequently (24 times) upon the 7th day; upon the 5th day 17 times, and upon the 6th day 16 times. The relapse in the 100 cases was not noticed 8 times, and in 27 instances the commencement of the recurrent attack could not be determined with certainty. Of the remaining 65 cases, in the greater number, namely 17, it occurred on the 15th day—then on the 12th and 13th days (respectively 10 and 9 times), and only 14 times on one of the critical days of Hippocrates. The crisis of the relapse period in 34 cases happened on an irregular day (3–9), reckoning from the commencement of the relapse; in 31 cases it occurred on regular days (2–6) most frequently on the 4th, 5th, and 3d days, namely in 24, 21, and 11 cases respectively.

As a basis of diagnosis for recurrent fever, may be taken, the rapid course of the crisis, which, unlike that in pneumonia and intermittent fever, is, in most instances, completed in from 6 to 8 hours, often even in 4; in conjunction with great reduction in the temperature of the surface, and in the frequency of the pulse. The lowest depression of the temperature was 5° R.; often it was 7° R. The lowest depression of the pulse was to 40 strokes in the minute; in one case it fell to only 80 strokes. The same depression of temperature and decreased frequency in the pulse, is observed during the period of relapse; usually the recurrence of the disease takes place before either the temperature or the pulse have resumed their normal grade.

Delirium. Dr. F. observed in his 100 cases, only 12 times during the exacerbation of the fever, and as many times also during or immediately after the period of crisis, and 3 times on the day subsequent to the decline of the fever. Neither the duration of the delirium, observed during the height of the fever, nor its intensity, was very considerable; it usually terminated as the febrile delirium of other diseases. Very different is the delirium which in relapsing fever sets in during or after a crisis has occurred. It either assumes then the character of a furious delirium tremens, or of a stiller form, with occasionally more or less indistinct muttering, prompted by some prominent idea; in some cases it is so slight as to be readily overlooked. Both these forms of post febrile delirium are to be viewed as the products of inanition, as is the case in the delirium which follows the close of other acute diseases, and which even in those who have not been guilty of an abuse of intoxicating drinks, is identical in form, so often, with delirium tremens. The suspended nutrition during the continuance of the fever, the critical discharges, and the defective action of the heart readily explain the occurrence of this form of delirium after relapsing fever. It is to be subdued by the same means as when it occurs in cases of debility from non-nutrition, etc., in other diseases (pneumonia, phthisis, etc.); the employment, namely, of opium, or morphia. Of the subcutaneous administration of the latter, Dr. F. speaks in terms of commendation.—*Centralblatt f. d. Medicins. Wissenschaft.*, May 7, 1870. D. F. C.

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24. *Pathology and Treatment of Scarlet Fever.*—Dr. Renfrew, of Glasgow, read a paper on this subject before the British Medical Association. He stated that scarlet fever is one of the zymotic diseases, which diseases are produced by an organized substance entering the body, which has the power of multiplying itself. In multiplying itself the blood is disordered, the nervous system deranged, the circulation quickened, and the secretions and excretions are changed. The poisons of the zymotic disease are not thrown off by the usual eliminating organs, but each poison is eliminated by a particular part of the body—smallpox by the skin, cowpox at the point of introduction, enteric fever by the lower part of the ileum, scarlet fever by the fauces and nose. When the poisons are thrown off there is always irritation and inflammation. As the poison of scarlet fever is thrown off by the fauces and nose, a large portion must pass into the stomach to be reabsorbed, intensifying and prolonging the disease. The remedies given in scarlet fever should be those that will destroy the poison; moderate and assist physiological changes. To accomplish these ends a mixture of chlorate of potash and tincture of steel is given, which contains chlorine, muriatic acid, iron, and chlorate of potash. The chlorine destroys the poison; the acid supplies acid to the blood, which is in a subacid condition; the iron improves the red disks, which are in a black and melanosed condition; the chlorate of potash supplies oxygen, to assist in oxidizing the disintegrated material that is floating in the blood.—*Lancet*, Aug. 20, 1870.

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25. *Delirium in Scarlet Fever.*—Dr. J. K. Spender observes (*British Medical Journal*, July 16, 1870) that there is no disease, as asserted by Heberden, in which the patient is more apt to be delirious, and with less danger, than in scarlet fever. Speaking broadly, the delirium which may happen in scarlet fever is of two distinct orders: (*a*) the delirium of adults, occurring early in the history of the disease, and usually an index of high fever; (*b*) the delirium of children, occurring later in the disease, and often arising out of some sudden

impairment or stoppage of renal function. Now, the delirium of the adult fever, always excepting that which is associated with the puerperal state, may be left pretty much alone, so far as concerns the meddlesomeness of starving, purgatives, and antimony. In the case of a married lady who, in the spring of 1864, caught scarlet fever from an only child whom she nursed with most affectionate zeal, active delirium lasted for nearly sixty hours. I supported her with frequent small injections of milk and beef-tea, each injection containing ten drops of laudanum. When the patient suddenly rallied from her delirium, she seemed, *quoad* fever, nearly well. If a similar case were to come under my care now, I should cautiously try the subcutaneous injection of morphia, or, at least, try to get the patient to take hydrate of chloral, dissolved in a large bulk of water.

The delirium of children is often of much more serious import. It may be epileptiform in type, and may merge into coma with very little warning. The narrative of a very apposite case will probably be better than any dry description. On March 9, 1865, I began attendance on a case of scarlet fever in a young lady, ten years of age. The case was moderately severe, but everything went on absolutely well until about the twenty-fourth day, when I first noticed that the urine was very red. Remember Dr. Andrew Anderson's axiom, that it is "of more importance to examine the urine than to feel the pulse of a convalescent from scarlet fever." During the week ending Saturday, April 8, the urine was very red every day, but it was not scanty, and the small amount of albumen in it was sufficiently accounted for by the presence of the blood. There were no symptoms of any other kind announcing danger; and unfortunately in those days one did not use the thermometer as a daily companion as we do now, or doubtless it would have told its tale. The weather was beautifully warm and fine, as it was, indeed, all through the month. Early on Sunday morning, April 9, I was suddenly called to see the child, and I found her insensible, and strongly convulsed; the breathing stertorous, and the extremities cold. I adopted, without a moment's delay, an old-fashioned treatment, but it was perfectly successful. The head was shaved, and a small blister placed on the scalp; as soon as enough consciousness returned to allow deglutition, half a drachm of compound scammony powder was given every six hours until ample purgation resulted; and a hot bath was administered in the evening. On Monday, April 10, consciousness had partly returned, and there had been no convulsions since the previous evening. Only milk food was allowed, with abundance of toast and water as a drink. Absolute rest in bed was enjoined for a week, when the urine had become normal in colour and specific gravity, and was quite free from albumen; occasional hot bran poultices were applied to the loins. There was no subsequent interruption to perfect recovery.

This was an instance of tubal nephritis, of a subacute type, but involving so much of the secreting tissue of the kidney as to hinder the passage of urinary excreta; hence the uræmia and its usual consequences. In the early management of these cases there is probably no better plan than to give that simple and powerful diuretic, copious draughts of cold water.

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26. *Clinical Study of the Disease of the Kidneys in Scarlet Fever.*—Dr. L. THOMAS (*Archiv der Heilkunde*, X.) from observations made by him in eighty cases of scarlatina, has arrived at the conclusion that catarrh of the tubuli uriniferi does not occur in the same proportion in cases of scarlet fever, as does catarrh of the respiratory tubes in cases of measles. The two diseases do not resemble each other either in the regular occurrence in both of the catarrhal symptoms, or in the period of their appearance. Of his 80 scarlet fever cases, in 25 the condition of the urine was watched from the very onset of the disease. In 7 of these there was no appearance of albumen, but only of cylindroid formations, whilst there was an entire absence of any of the symptoms of catarrhal affection of the uriniferous tubuli, among which Dr. T. reckons the presence of a large quantity of opaque and degenerated epithelial scales, of blood, and of tubal casts. He observed as an exceptional occurrence, only the presence of albuminuria, in the early period of the disease, and then but to a small extent, and soon disappearing. In proportionately many cases, however, there may be observed, soon after the attack of scarlet fever, a slimy cloudiness in the urine,

that had been previously clear, and free from albumen, with an increase of epithelial scales, and sooner or later, single, cylindroid, elongated formations, true cylindrical casts being seldom present. When at the commencement of scarlatina albumen is detected in the urine, the latter will be found to contain, at the same time, more or less, unbroken epithelial scales, epithelial and hyaline cylinders, as well as cylindroid formations, with or without blood corpuscules. In such cases there was observable a gradual increase of the symptoms of nephritic disease during the course of the scarlatina.

On the presence in the urine of the cylindroid bodies, Dr. T. places much importance, believing that the specific process of scarlatina is to a certain extent the cause of their formation. From his observations he is convinced that they originate in the tubuli uriniferi by a transudation resulting from a pathological change of the epithelium of their tubuli. He recognizes four varieties of cylindroid bodies. They are either exceedingly pellucid, for the most part of considerable length, often fractured or corrugated, and perhaps forked; or they are broad, tolerably regular in size and form, and laid in longitudinal plaits, so as to present a striped appearance, and often split or fringed at the ends. At the same time they are often indented obliquely and twisted, as it were, upon their axes. Other cylindroids are somewhat smaller in size, and nearly as broad as the ordinary hyaline cylinder, without longitudinal folds or fringed extremities, with oblique depressions and fractures. The third variety of cylindroids is not so broad as the usual small hyaline cylinder, it is without longitudinal folds and fringed extremities, or with oblique depressions, with few apparent fractures, having somewhat the appearance of a narrow ribbon. Their coutours are perfectly parallel. The distinction between these and the true cylinder consists chiefly in their greater delicacy and more considerable length. The fourth variety of cylindroid formation is marked by extreme fineness, and its fibriform appearance, as though it were formed out of the third variety by dividing this lengthwise into minute fibrilli. Between the different varieties of cylindroid formations and the proper hyaline cylinder, Dr. T. has seen the occurrence of complete metamorphosis, frequently a cylindroid body assuming the form of the hyaline cylinder.—*Centralblatt f. d. Medicinisch. Wissenschaft.*, April 30. 1870. D. F. C.

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27. *Pyæmic Inflammation of the Joints as a Complication of Scarlet Fever.* —Dr. J. K. Spender, in an instructive article (*British Medical Journal*, July 16, 1870), remarks that "this complication has been noticed by nearly every systematic writer on scarlet fever, though by many in such an imperfect way as to suggest that its importance was scarcely recognized. But the fact of morbid anatomy is that not only may there be a transitory inflammation of synovial membrane, but an inflammation prolonged and intense, leading to suppuration in the interior of a joint, and ultimately to erosion and destruction of the cartilages. In short, the joint no longer exists as such for physiological purposes, and, under the most favourable circumstances, the patient recovers with dislocation or deformity. The wrist-joints seem particularly liable to disease, and next to them the knee-joint and the hip.

"In the summer of 1863 I attended a scrofulous child severely ill with scarlet fever; the pyrexia was mild, but the wrists and right hip-joint became early and gravely involved, and after a time I discovered complete and irreducible dislocation of the head of the femur on the ilium. Besides these serious external lesions, a pulmonary abscess formed, which in a little while became a gangrenous vomica, and caused the incessant expectoration of fetid puriform matter. The poor child lived on in emaciation and suffering for nearly five years, and was killed at last by exhaustion and anorexia.

"Very lately I have attended another case of scarlet fever in the person of a young woman, the daughter of a wealthy tradesman, and nursed with every comfort. The illness appeared to be proceeding in a most favourable way, when one morning I found that the temperature had risen a degree and a half since the preceding evening. The wrists were swollen; and here I may speak of the importance of distinguishing a *bonâ fide* joint-swelling from that cutaneous œdema which often accompanies specific fevers; further, the hands could not be flexed without pain, and there was more general pyrexia. The treatment was so successful that in four days the local symptoms had entirely gone away, and the disease went on to a quick and happy termination.

"I have not noticed any special disturbance of the nervous system previous to the inflammation of the joints coming on. The thermometer affords a safe criterion of danger; it tells us that something approaches, the nature of which our sagacity must discover at the earliest possible time. * * * *

"The two trustworthy means in the treatment of the intercurrent affection of the joints in scarlet fever are: (*a*) the local application of heat and moisture, and (*b*) the administration of quinia. Foment the joint or joints with some hot medicated fluid; surround each with a layer of cotton wool; and place over this, again, a piece of oil-silk, which should be tied securely down above and below the joint, so as to protect it from all inquisitive draughts of cold air. Let this process be repeated morning and evening; in short, do just what you would do for a joint afflicted with acute rheumatism. Then, without discussing the large question whether quinia is a so-called "specific" in scarlet fever, or whether it may be safely trusted as the chief medicinal factor in pulling a patient through a dangerous adynamic stage, one thing appears certain—that this articular disease may with great advantage be treated with quinia, administered punctually and perseveringly. Here, again, we see a close analogy between scarlet fever and acute rheumatism. In the latter of the two cases which I have rehearsed, I began the use of quinia without delay; one grain was given in an ounce of acidulated water every three hours, night and day; and, the bowels having been previously moved with castor oil, no other medicine was prescribed. The fall of temperature was the first notable fact, and this was distinct and abrupt on the day after the treatment was begun; and, again, in twenty-four hours after this, the heat of body did not exceed the normal standard. Simultaneously, the development of local symptoms was arrested. A grain of quinia was administered every four hours for two days more, and so gradually left off. The convalescence was rapid and complete.

"Now, when we study the action of quinia in a case of this kind, we see how well it exemplifies the most recent ideas and facts of quinia-therapeia. The two new cardinal points about quinia are: (*a*) that it is an *antiseptic*, as shown by Dr. Binz in its power to prevent and arrest putrescence and fermentation; and (*b*) that it is an *antipyretic* or *antiphlogistic*, as demonstrated by Cohnheim in his experiments on the influence of quinia in inflammation of the mesentery of the frog. Further, the unquestionable power of quinia in acute rheumatism suggests the inquiry whether all inflammatory joint-affections may not be connected in a remote causal way with central nerve-lesion.

"If it be true that scarlet fever usually requires abundant support with a fair auxiliary amount of alcohol, this doctrine has special force when the joints are inflamed. Tissue-repair is gravely interfered with during the fevers of childhood; and when that interference is greatest, those structures suffer most in which growth is most active during health. It has been well said that "in the treatment of children's acute diseases the overwhelmingly important consideration, both with reference to present recovery and the avoidance of disastrous sequelæ, is *nutrition*."

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28. *Value of a Large Supply of Food in Nervous Disorders.*—Dr. G. F. BLANDFORD expresses (*Practitioner*, June, 1870) the belief that the unaided effects of food in the cure of nervous disorders have not had the trial they deserve.

"Certain chronic invalids," he says, "who have been brought under my notice have been lifted out of their former condition of 'nervousness' by a large increase in the quantity of their food. They have been people suffering from some general neurosis, taking the form of an insanity of a low and depressed character, or hypochondriasis, hysteria, alcoholism, or neuralgia, affections closely allied one to another, which may be witnessed in one form or other in individuals inheriting the same neurotic temperament. We may see different members of the same family displaying one insanity, another neuralgia, a third hypochondriasis, while the conversion of one variety into another is a matter of every-day observation. * * * *

"If we inquire into the past history of nervous patients, and have the opportunity of learning accurately the facts thereof, we often find that for a considerable time the supply of daily food has been in no degree adequate to the necessities of the individual. Here is a common case. A man somewhat past middle life, but whose years do not imply senile decay, becomes unfit for business, fidgety, irritable, depressed, or even melancholic to the extent of insanity. We hear that he has been a hard-working man of business, always nervous, and very probably an indifferent sleeper. Being most heavy for sleep in the morning, he has risen at the latest moment, and, snatching a mouthful of breakfast, has hurried off to catch the train or omnibus, worried and anxious lest he fail to reach his office at the hour appointed. At lunch-time, if he be really hard-worked, he takes, not a meal, but a sandwich or biscuit, eaten perhaps standing, and often bolted in so great a hurry that digestion is difficult; he tells us that he dare not take more of a meal in the middle of the day, for he would be rendered unfit for the remainder of his work. In the evening, with what appetite he may, he eats his dinner, perhaps not before half past seven o'clock. Now, granting that his dinner is amply sufficient, such a man lives on one meal a day with very little besides. These are the persons who cannot go on without frequent holidays; nervous by inheritance, they break down because they are insufficiently fed. A holiday, during which they live better, builds them up again for a time, again to break down; often to fall into the condition above mentioned. Another class among whom we may frequently witness the same result and corresponding symptoms are the clergymen who for various reasons deny themselves an adequate amount of food. Either they fast rigidly, according to the rule and doctrine of the day, often allowing some hours to elapse before they break their fast, or they think that hearty eating is a snare and a carnal enjoyment, or they hold it sinful to eat their fill while others are in want. Whatever the cause, certain it is that many of the clergy break down in one or other of the forms of nervous disorder already enumerated, and an enlarged dietary is to them a necessity. A vast number of women, for one reason or other, take a very small supply of food: some think it unladylike to eat heartily; some eat on the sly, and when this is not practicable go without. Many from the lives they lead are doubtless correct in saying they cannot eat because they have no appetite. These stay in the house from month to month, or never venture beyond the door except in a carriage, because ladies do not walk in the streets. Others have misgivings on the score of their digestion. Like many women who lead sedentary lives, and habituate themselves to passing long periods without action of the bowels, they suffer greatly from constipation, which is looked upon as an indication and a warning that they ought not to eat. So they starve themselves, and fancy that if they abstain from food it is of little consequence whether they pass a motion once a week or once a fortnight."

In low nervous depression, or meloncholia, he particularly urges the importance of full feeding. "It is not necessary," he thinks, "to adhere to a sick diet—to beef-tea or boiled mutton, to essence of beef or Liebig's food, or any other of the concentrations so loudly recommended. The ordinary diet-list of the individual in health may be given without hesitation—fish, game, poultry, meat, puddings, and the rest. His appetite should be stimulated by variety, and his dishes may be savoury as well as wholesome; but the supply must be large. Such patients for the most part have accustomed themselves to eat during the day a scanty and insufficient amount, and we shall be told that latterly they have not taken half their usual quantity. It is not too much to say that they require double that which they have so long taken; and as we shall not be able to induce them to eat double the quantity at a single meal, it will be necessary to multiply the number of the meals. Instead of breakfast, lunch, and dinner, two of which have probably been but the semblance of a meal, we may institute a series of feedings after this kind: first, something may be given early in the morning, before the patient gets up, as rum and milk, egg and milk, chocolate or *café au lait*. This will be useful in allaying the feeling of extreme depression and dispelling the gloomy and suicidal thoughts so constantly present on first waking. Next, breakfast may be taken, after dressing, and between it and the two o'clock lunch something else, as beef-tea or a sandwich. The dinner-hour should not be later than six, and at bedtime some light kind of supper should not be omitted. By this kind of division food may be administered six times in the day; and if the patient wakes in the night, and is restless and nervous, and disinclined to sleep again, food, taken even in small quantity, will often bring back sleep. With all this food may be given a reasonable amount of wine, or wine and stout, and this not by way of curing the disorder by stimulants, but because in conjunction with them less food appears to be required, and also because the addition of some wine or beer often renders the taking of the food more easy to the patient.

"Now the latter, and it may be the friends, will protest loudly that it is impossible to take this quantity: he will assign every conceivable reason for avoiding it; but if we are firm and insist, and, if necessary, cause him to be fed with a spoon, he will retain and thrive on it, and in a few weeks, or even days, will show very marked signs of its good effect. Patients have recovered under this treatment in a singularly rapid manner."

In alcoholism, both acute and chronic, especially the latter, the administration of nourishment in large quantity is highly necessary.

In hysteria and neuralgia he considers the same treatment required. Believing that neuralgia is one manifestation of impaired sensibility, as other neuroses may be displayed in mental symptoms, and in these alone, he thinks that the radical cure, and not the mere alleviation, is to be found in many cases in the supply of a large amount of nutriment to the nervous system.

In all chronic forms of neurosis, he considers alcoholic stimulants in any but the smallest quantity to be productive of evil rather than good. "In such disorders the fear, so commonly entertained both by doctors and patients, of 'overloading the stomach,' producing 'biliousness,' and the like, is in the majority of cases not realized when the plan of administering food in large quantity is tried."

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29. *Action of Hydrate of Chloral in Paralysis of the Insane and other forms of Insanity.*—The *Practitioner* for Aug. 1870, contains an interesting article on this subject by WM. MACLEOD, M.D., Dep. Inspector-General of Hospitals and Fleets. The following are his conclusions:—

1. That in paralysis of the insane, where the patients are destructive and violent, the judicious administration of chloral acts as an excellent hypnotic by night and soothing agent by day.

2. That under its action the patients have been free from destructive habits, and have gained in weight and strength.

3. That in one case as much as 2810 grains were taken during ninety-five days, the daily average taken being 30 grains. In a second case as much as 2435 grains were taken during 122 days, being at the rate of 22 grains daily; when the patient gave evidence of prostration. A third patient took 2380 grains during eighty days, the daily average being 28 grains with no bad symptoms. A fourth patient took 1362 grains during sixty-seven days, the daily average being 20 grains, with no bad symptoms. A fifth patient took 501 in twenty-four days, giving a daily average of 25 grains with no bad symptoms.

4. That under it the action of the bowels and bladder has improved.

5. That in no case has there been a refusal of food; on the contrary, the appetite of the paralytic patients increased.

6. That patients suffering from abnormal sensation derived much benefit from it.

7. That in patients subject to hallucinations of hearing, with suicidal tendencies, it has cut short the hallucinations.

8. That in patients liable to hallucinations of hearing, and under their influence becoming excited and noisy, it has produced calm.

9. That in patients with a propensity periodically to maim and hurt themselves, the desire has passed away under the influence of chloral.

10. That in patients who suffer incessantly from voices, it has been given with

partial benefit only. This refers to patients who were aware that the voices depended on morbid sensations.

12. In certain cases of melancholia benefit was derived from its administration, and convalescence advanced.

12. That in another case of melancholia with extreme depression, and the intellect being good, no permanent benefit was derived, except that under its administration the bloody exudation from the stomach completely disappeared.

13. That the greater the disorganization of the brain and cord (as judged by the symptoms, and especially by thermometrical observations) the sooner does the system come under chloral action.

30. *Treatment of Local Paralysis by Subcutaneous Injection of Strychnia.*—Mr. Barwell related to the Clinical Society of London (May 27) four additional cases illustrating his method of treating local paralysis by subcutaneous injection of concentrated solution of strychnia. Some of these cases were so managed as to serve experimental purposes. All solutions were of the strength of two grains to one hundred minims. Of these doses, beginning in the first case at one half-minim, and increasing in that and other cases to twelve half-minims, were employed. The first solutions had been neutralized by magnesia, in others the fluid was allowed to remain acid; in one case, injection of twelve half-minims was followed by general effects; in another, in which ten half-minims produced no general symptoms, the injection of seven half-minims into two different places was followed by slight twitching. From this Mr. Barwell argued that neither chloride of magnesium nor acid exercised any protective influence, but that the concentrated form of solution was the sole condition of safety, since the surface for absorption was so small. In all cases a certain amelioration, in one (besides that previously related) a very marked improvement, followed rapidly the use of the drug.—Dr. Buzzard mentioned the case of a patient in whom, a few days previously, the hypodermic injection of one-thirtieth of a grain of strychnia (*Pharm.* solution) had been followed by spasm of the jaws. —*British Medical Journal*, July 16, 1870.

31. *Treatment of Hæmoptysis.*—Dr. Dyce Duckworth discusses (*Practitioner*, Aug. 1870) the practice of treating hæmoptysis with styptic remedies and maintains that they may be dispensed with in favour of the following more simple plan.

"On the occurrence of continued hæmoptysis all other remedies should be withheld, and a simple astringent or slightly aperient medicine given. A good form is ♏x to ♏xv of dilute sulphuric acid, and, according to the state of the bowels, ʒss to ʒj of sulphate of magnesia may be given with this in some spearmint water every half-hour at first, and then less frequently. In addition to suitable posture (semi-erect), and other well-known favouring conditions, absolute silence should be enjoined, and the patient urged to refrain from coughing as much as possible. Should the bleeding continue, we should place a bladder of ice,[1] or a frozen compress,[2] between the scapulæ for a short time. This sometimes acts promptly, no doubt by reflex action, and probably this is the only means whereby a rapid change can be induced in the vascular walls. Should this fail, tinct. digitalis should be given (♏x or xv) with each dose of the astringent saline. In addition to this, if the case appears obstinate, a blister should be painted on the front of the chest, under the clavicle of the side believed to be affected.

"The ordinary habits and remedies may be resumed in a day or two after the cessation of the hemorrhage.

"The above description comprises the most beneficial method which I have witnessed, and, in setting it forth here, I need not say that there is no novelty in it. I do believe, however, that it deserves to be employed more frequently instead of the medication with opium and powerful astringents."

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[1] Walshe, Diseases of the Lungs, 3d edit. p. 427.

[2] Niemeyer, Text-book of Practical Medicine, Amer. transl. vol. i. p. 152.

32. *Bromide of Potassium in Ague.*—Dr. MOXON extols (*British Med. Journ.*, June 11, 1870) the efficacy of bromide of potassium in ague, and states he has used it successfully in two cases where quinia had failed.

33. *Somnambulism cured by Bromide of Potassium.*—Two cases of this are recorded in the *Gaz. Med. Venete;* one by Dr. B. LEVI, the other by Dr. PELIZZO. The subject of the first case was a married woman æt. 24, for ten years had two or three times a week paroxysms of somnambulism. Dr. L. gave her 2 grammes of the bromide daily. Under this treatment the attacks gradually became less severe and less frequent, and at the time of the report she had not had one for two months.

The subject of the second was a girl æt. 8, who so soon as she fell asleep would start up from her bed walk about her room, &c. One gramme of the bromide of potassium taken morning and evening immediately arrested her nocturnal walking.—*L' Union Médicale*, July 28th, 1870.

34. *On the Use of Arsenic in Certain Painful Affections of the Stomach and Bowels.*—Dr. ARTHUR LEARED, in an article on this subject in the *Medical Times and Gazette* (July 23, 1870), states that pain after food is a very common symptom of dyspepsia, and in many cases seems to constitute the disease. "This pain usually yields to medical treatment and proper diet. But there is another kind of gastric pain far more severe than that which depends on food, and which does not yield to ordinary remedies. I have elsewhere pointed out how this pain may be removed, and the subject seems of sufficient importance for some further remarks.[1]

In case of the stomach, the pain we have to deal with happens to the same individual at one time when it is full, at another time when it is empty. But cases are met with in which the presence of food in the stomach is clearly the exciting cause. The typical case is that in which there is pain independent of the act of digestion. In this form it commonly seizes the patient in the middle of the night, and is not preceded or attended by any dyspeptic symptoms. The pain in these instances, which are fortunately not very common, is extremely severe, and attended with alarming prostration, lowering of the heart's action, pallor, and cold perspiration. Brandy and other stimulants give but little relief, and after a period of agony, sometimes extending to several hours, the attack ceases as suddenly as it had commenced.

Persons of middle age who have been exposed to some great cause of mental depression are peculiarly the subjects of this affection of the empty stomach. Dr. Budd has also noticed mental disturbance as an exciting cause of the disorder, and he adds that "it is closely allied to water-brash." In this statement I do not concur, for without entering into the vexed question of the nature of water-brash, it is sufficient to say that a particular remedy which cures the one proves injurious to the other.

Further experience has taught me that the bowels, and especially the small intestines, are subject to the same kind of pain. I do not include colic from the effects of lead; but many cases of so-called colic unaccountably occurring at longer or shorter intervals are from the same cause. For whether the pain attacks the stomach or the intestines, its nature is the same; it is essentially neuralgic. Upon this circumstance the success of the new treatment, which consists in the judicious exhibition of arsenic, depends. As may be inferred from what has been stated, the difficulty of diagnosis between the neuralgic and the more common forms of gastro-intestinal pain is sometimes very great. The best rule of practice is, when gastric or intestinal pain resists all ordinary treatment, and cannot be traced to gall-stones or any organic source, to test the matter by the effect or non-effect upon it of the remedy. By this method I have succeeded in effecting several cures. On the other hand, the arsenical treatment has failed in two cases in which, so far as the diagnosis could be established, it ought to have succeeded. In both instances the patients were women past middle age, of stout habit, and too freely addicted to the use of alcoholic stimulants.

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[1] "The successful Use of Arsenic in certain kinds of Gastric Pain." (Read at the meeting of the British Medical Association at Dublin, 1867.) *British Medical Journal*, November 23 and 30, 1867.

The curative effects of arsenic are most striking in severe cases of paroxysmal pain, and its success becomes doubtful in proportion as the case assimilates to those in which a lower degree of pain is traceable to the influence of food. In determining the question of the fitness of a case for the arsenical treatment certain circumstances may render essential aid. If the disease came on after some mental shock or severe trial, if the patient has previously unmistakably suffered from neuralgia, if he has lived in a marshy district, and especially if he has had hemicrania or ague, and if, in addition to the occurrence of one or more of these circumstances, the pain is paroxysmal, it will almost certainly yield to arsenic. But as already said, there are other cases suitable for the treatment, and they are the most numerous, in which the pain closely resembles that which attends dyspepsia. It is sometimes extremely difficult to make the diagnosis between neuralgic pain of the stomach or bowels and the pain caused by gallstones. But in my previous paper I have gone into details respecting this and other sources of error.

A few words will suffice as to the particular preparation of arsenic to be selected, and the extent to which it should be used. In most cases the liquor arsenicalis answers every purpose, but when the system is more than usually susceptible of the action of the mineral, the liquor sodæ arseniatis seems to irritate less, and in a few instances the acid solution of arsenic is to be preferred to either. Whatever preparation be selected it should always be taken immediately after food, and, notwithstanding that its beneficial action may have been previously observed, it will be proper to continue the medicine until its constitutional effects are well marked. Notwithstanding what has been said to the contrary, I do not believe that the proper use of arsenic as a medicine is followed by any injury to the system.

35. *Therapeutics of Chronic Constipation.*—Dr. J. K. Spender, in an instructive paper on the treatment of constipation when it exists *per se* as a primary disorder of function, recommends the following judicious plan, which comprises four factors: (*a.*) Minute and frequent doses of watery extract of aloes, not exceeding 1 gr.—very rarely, of extract of colocynth. (*b.*) A dose of sulphate of iron, gr. iss to gr. ij, *always combined* with the aperient. (*c.*) Regulation of the diet. (*d.*) Constitutional exercise. He does not believe that any other drug can supply the place of the sulphate of iron, though belladonna may be occasionally useful as an auxiliary. At first he gives a pill, composed as above, three times a day, immediately after the principal meals, and gradually reduces the number and frequency of the pills as the intestinal functions are restored. The action is slow, requiring two, or perhaps three, days, but *nothing approaching to purgation* ought ever to be permitted. As a substitute in certain cases, Mist. ferri co., with dec. aloës co., in corresponding doses, may be adopted.—*Med. Times and Gaz.*, Feb. 19, 1870.

36. *Infusion of Mustard in Obstinate Hiccup.*—Dr. Jauariz reports (*Siglio Medico*) a curious case of obstinate hiccup cured by the internal administration of an infusion of mustard. A Spanish physician was seized, while convalescing from a gastric fever, with obstinate hiccup, which gave him no rest. For sixty hours, the patient was treated with antispasmodics, narcotics, ipecacuanha, and revulsives, without effect. He then besought his wife to give him some linseed tea—she by mistake gave him an infusion of mustard. Of this the patient drank a cupful at once, and was surprised to find his hiccup cease, not to return. This physician profited by the lucky mistake of his wife, and subsequently treated with success many obstinate cases of hiccup. The dose which he employed was one teaspoonful to four ounces of boiling water. The author of the article in the *Siglio* had also successfully employed the infusion of mustard in three cases of obstinate hiccup which had already lasted many days. In the *Gazette Médico-Chirurgicale de Toulouse*, a case is related of a governess who had been treated for hiccup during twenty days with every variety of antispasmodic—

ether, belladonna, valerian, etc.; laudanum was the only thing which gave any relief, and enabled the patient to retain some nourishment. At last, recourse was had to the infusion of mustard: one teaspoonful of flour of mustard was infused for twenty minutes in about half a pint (250 grammes) of boiling water, it was then filtered, and given to the patient, who swallowed it at one draught. The troublesome affection ceased at once and never returned. Cases of obstinate hiccup are sufficiently frequent and intractable to make practitioners grateful to us for pointing out to them a remedy so efficacious and so accessible as infusion of mustard seems to be.—*Révue de Thérapeutique Médico-Chirurgicale*, 1st June, 1870.

37. *Cannabis Indica in Menorrhagia and Dysmenorrhœa.*—Dr. A. SILVER extols (*Med. Times and Gaz.*, July 16, 1870) the powers of Indian hemp in menorrhagia and in dysmenorrhœa, and relates several cases illustrative of its efficacy. He says it is efficacious, not only in merely functional menorrhagia, "but even in those instances where there is local mischief in the shape of tumours or malignant disease, the hemp still asserts its influence over the sanguineous discharge, but only for a time. Upon the whole, therefore, if the hemp given repeatedly, each time arresting the discharge and relieving pain, but when omitted these again recur, there is just cause to suspect the existence of uterine mischief other than merely functional disturbance. Thus, in a case of uterine fibroid tumour of great size, rising nearly to the umbilicus, and, of course, elongating the body of the uterus, the periodic flow was greatly increased, and the patient was consequently much weakened; even here the hemp proved satisfactory in arresting the discharge, but not in preventing its recurrence. In another instance, where the discharge proved intractable, a small polypoid growth was discovered, and removed, to the relief of the patient."

In painful menstruation, not being mechanical, he regards it as most useful, and states that Dr. Hunt has given it in one hundred cases, and had never known it to fail after the third dose in relieving pain and discomfort. Dr. S. usually prescribes the tincture in twenty minim doses, and says it is best given with aromatic spirit of ammonia.

38. *Rhinoscleroma.*—HEBRA states (*Wien. Med. Wochenschr.* 1870) that in four men and five females he had observed a very peculiar sclerosis of the skin of the nose, the forehead, the cheeks, and upper lips, in the form of a strictly circumscribed deciduous projection, having a smooth surface, and either corresponding in colour with the normal hue of the surrounding parts, or having a darker shade, a brownish-red tint, and of a density often equal almost to that of ivory. These prominences are most commonly free from pain; when sensible upon pressure they are very rapid in their development. They are never accompanied by any changes in the neighbouring parts referable to inflammation. A microscopic examination shows that in the morbid growths referred to (COHN), the epidermis presents no change. The papillary body and adjoining layer of the corium are greatly thickened within strictly circumscribed limits. Throughout the diseased portions there exist, imbedded in the meshes of the cellular tissue, small nucleated cells; these occur more especially around the bloodvessels. Along with these there may exist also in the deeper-seated layer of the corium, a similar condition of things, or even when the upper layer is not implicated or the subjacent fat tissue. Of the sebaceous follicles and perspiratory exhalants, within the diseased parts, no trace remains. The bulbs of the hair remain unchanged. As the cells above described as occurring in cases of scleroma have always a recent appearance, and undergo no retrogression, M. Hebra believes that the next change would be into *gliosarcoma*. He further remarks that when the scleroma, in the cases described, was destroyed by the application of caustic potash, after the lapse of six months, there was no recurrence of the disease. From none of the other therapeutic measures resorted to was any benefit derived.—*Centralblatt f. d. Medicins. Wissenschaft.*, April, 1870.

In the *Allgem. Wien. Med. Zeitung.* 1870, occurs an article from Dr. WEIN-

Lechner on the same affection as that described by Hebra. It presents, however, no additional facts of any importance.—Vide *Centralblatt* for May 7, 1870. D. F. C.

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39. *On the Anatomy of a Case of Molluscum Fibrosum.*—Dr. C. Hilton Fagge read a paper before the Royal Medical and Chirurgical Society, based on the results of the dissection of portions of the integument of a woman, aged forty, affected with molluscum fibrosum, who died in Guy's Hospital of another disease. The author examined some of the most minute tumours—scarcely bigger than pin's heads—by dissecting them out of the cutis, and submitting them to a low power of the microscope. An independent examination of some of the larger growths was made by his colleague, Mr. H. S. Howse. These were hardened in chromic acid, and fine sections of them were viewed with higher objectives.

The conclusions arrived at by the author and Mr. Howse were as follows: 1. Each tumour is originally developed round a hair-follicle, inclosing at the same time the sebaceous glands belonging to the follicle. 2. The smallest tumours consist of two distinct elements; a central glandular body, itself surrounding a hair; and a peripheral mass of very fine connective tissue, containing numerous minute oval nuclei. 3. The glandular body is a sebaceous gland, enlarged by the separation of its sacculi from one another, and perhaps also by the actual multiplication and increase in size of the sacculi themselves. 4. The peripheral mass of nucleated connective tissue is developed from the two external layers of the dermal coat of the hair-follicle and sebaceous glands. The structure of one of the smallest tumours was shown in the microscopical drawing which accompanied the paper. The centre of the tumour was occupied by a hair, surrounded by a beautifully branching glandular body, itself inclosed in a translucent fibrous mass.

A coloured drawing illustrated the appearance of the under surface of a portion of integument affected with molluscum, when it has been dissected so as to expose the numerous soft red tumors scattered throughout its substance.

The latter part of the paper was devoted to an examination of the literature of molluscum, and of the views propounded by previous writers. The only observations irreconcilable with the author's were those published in the year 1858 be Förster.

In conclusion, it was maintained that the author's investigations rendered the name "molluscum fibrosum" a more appropriate one for the disease under consideration than that of "fibroma molluscum" used by Virchow and other German writers.—*Brit. Med. Journ.*, July 30, 1870.

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40. *Stenosis Arteriæ Pulmonalis.*—Dr. Nobiling, in the *Bair. Aerztl. Intell. Blatt*, 1869, states that in a child which was completely cyanotic, and died on the fourth day after birth, the heart was found to be double its normal size from concentric hypertrophy of the right ventricle. The cause of this inordinate enlargement was found to be a very high degree of stenosis of the mouth of the pulmonary artery, with considerable thickening and rigidity of the semilunar valves. Both the foramen ovale and the septum ventriculorum were open. The ventricles were unusually light-coloured towards the apex of the heart.—*Centralblatt f. d. Med. Wissensch.*, March 26, 1870. D. F. C.

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41. *Case of Essential Dropsy.*—Dr. A. Wernick relates (*Deutches Arch. fur Klin. Med.*, 1870) the case of an unmarried female 22 years old who, during convalescence from a febrile disease of some weeks' duration, became affected with œdema of the lower extremities, and shortly afterwards with swelling of the abdomen and difficulty of respiration. After her admission into the hospital the existence of hydrothorax was made out. No disease of the heart could be detected—the urine was without a trace of albumen, and by the aid of the microscope nothing abnormal could be detected in the blood. There was increased sensibility of the skin throughout almost every portion of the body, while its temperature was reduced to almost its lowest degree. The thorax was twice punctured to allow of the discharge of the effused fluid it contained, which

gave to the patient great relief. Soon, however, intense cyanosis and somnolence set in, and were quickly followed by death. Upon a *post-mortem* examination, no trace of any lesion adequate to the production of the dropsical effusion could be detected, hence Dr. W. concludes that the case is to be viewed as one of those rare forms of dropsy which is dependent solely upon a disturbance in the function—a decreased activity—of the cutaneous exhalants, and that confessedly, in the treatment of the case described by him, a well-known variety of this form of dropsy had been entirely overlooked. D. F. C.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

42. *Results of the Greater Amputations.*—Mr. SPENCE read before the Medico-Chirurgical Society, Edinburgh (July 6, 1870) an interesting communication on this subject. It was founded on the results of his own practice only, and included 403 cases. The paper was illustrated by very extensive tables, showing the causes which rendered the amputations necessary, and the results of each. The tables are far too long to be reproduced here. The first one gives the general results as follows:—

	Total.	Recovered.	Died.
Hip	9	3	6
Thigh	155	100	55
Knee	1	0	1
Leg	53	37	16
Ankle	82	76	6
Total lower extremity	300	216	84
Shoulder	23	17	6
Arm	33	21	12
Forearm	43	35	8
Wrist	4	4	0
Total upper	103	77	26
Grand total	403	293	110

After some general remarks on the dangers of amputation, Mr. Spence pointed out how in many cases the *circumstances* of the case, rather than the operation itself, are the causes of death. The most familiar example of what he meant was to be found in strangulated hernia, in which the operation itself was nothing, but the delay of the operation often made it fatal. Hence the importance, in all statistics of amputations, in mentioning the disease or injury for which the operation was performed. He then analyzed the causes of death in primary amputations, under different heads: 1. Additional injuries; 2. Shock; 3. Loss of blood; 4. Gangrene of stump; 5. Pyæmia. He then illustrated the difference in result of operation for accident and operation for disease, by the results of his own amputations of the leg. Of thirty-one cases for accident, sixteen recovered, fifteen died; of twenty-two cases for disease, twenty-one recovered, one died. Of seventy-nine amputations of the thigh for disease, sixty-seven recovered, and only twelve died. And his impression was, that the most of those that died were cases of amputation on account of gelatinous disease of the knee-joint. He observed that amputations for necrosis were much more fatal than those for joint-diseases, and advised delay in cases of acute necrosis. On the mode of operating, Mr. Spence observed that, while for disease of joints he advised the operation by a long anterior flap, with a little muscle to cover the end of the bone, with a short posterior one, he advised, in cases of accident or malignant disease, the use of two equal flaps, or of the modified circular, as in such cases your object was to save as much of the length of the limb as possible, and also remove as much muscle as possible. —*British Med. Journ.*, Aug. 6, 1870.

43. *Position as a Means of Arresting Traumatic Hemorrhage.*—Mr. Geo. Y. Heath, in his interesting address in Surgery at the late meeting of the British Medical Association, made the following instructive remarks on this subject:—

"In carefully adjusted position we have a ready means of modifying the force of the arterial stream. The mere elevation of a limb exercises considerable influence over its circulation; but other positions, such as extreme extension and flexion, either with or without elevation, may be so employed as to keep the blood stream under almost perfect control.

"A young woman was admitted into University College Hospital, a good many years ago now, whilst I held the office of House-Surgeon under Liston in that institution, with a wound of the superficialis volæ artery, inflicted by the point of an oyster-knife; the injury had been done some days before her admission; repeated attacks of bleeding had occurred, and vain attempts had been made to secure the ends of the vessel in the wound; the hand was swollen and inflamed, and the wound in a sloughy condition. I had her arm raised very high upon pillows, and stretched out in the extended position, by bandages to the hand, whilst irrigation with cold water was employed to the wound, which was uncovered. No bleeding recurred. At the time, I believed that the elevation of the limb was the sole cause of the arrest of bleeding; but I am now inclined to think that the extended position of the arm was also not without some effect.

"My attention was first drawn to the effect of this position two years ago, by one of the surgeons of the Lariboisière, who informed me that he had ascertained by experiment that by extreme extension the force of the arterial circulation might be materially modified. I have myself experimented upon this position, and find that, in thin persons particularly, extreme extension, or, as it may be shortly called, 'over-extension' of the elbow-joint, enfeebles the pulse at the wrist, and where the elbow-joint admits of being so extended that the end of the humerus presses forwards against the artery, the pulse is entirely extinguished. Abduction of the shoulder-joint and over-extension of the wrist aid this effect. In the lower extremity, if a hard cushion be placed under the buttock, and the hip and the knee-joints over-extended, the pulse at the ankle is also very greatly enfeebled. I have not employed this method in cases of actual bleeding; but although the position might be difficult to enforce, believe that it would be useful, at least as an auxiliary measure.

"The power exerted by the bent position of a limb, or over-flexion, upon the blood-stream, first came under my notice a good many years ago in this way. In the year 1848 or 1849, a travelling jeweller, who had a booth at one of the periodical fairs in this town, having occasion to get up in the night, struck his leg, whilst walking across his booth, against the sharp projecting end of the broken top of one of his jewel cases. He fell to the ground in a fainting state; and Mr. Featherstonhaugh, a surgeon here, was hurriedly sent for to see him. Mr. Featherstonhaugh found a punctured wound high up in the leg, passing deeply between the bones, and bleeding furiously; being alone in the middle of the night, and without instruments, no operation could be attempted; and he endeavoured to stay the bleeding by plugging. This was utterly impossible; in spite of his efforts, the blood continued to well up from the wound like water from a spring. Mr. Featherstonhaugh was at a loss for a time what course to pursue, when it occurred to him to bend the leg forcibly upon the thigh; the flow of blood was at once slacked, and pressure by pads now easily arrested the hemorrhage. The bent position was not kept up in this case, and bleeding recurred—on account of which I saw the man with Mr. Featherstonhaugh; and ultimately the anterior tibial was ligatured at the wound, and a piece of broken glass removed from the interosseous membrane. This case was reported in the *Lancet* at the time, and was quoted by Mr. Guthrie in his lectures at the College of Surgeons, as a good example of his own principle of treating wounded arteries. The point in the case, however, which I now wish to notice, is the marvellous effect produced by bending the knee. This effect was never forgotten by me; and since that time, but more particularly of late years, I have frequently had recourse to this expedient to stay arterial bleeding, sometimes temporarily, often permanently. For some time I hesitated to trust to this proceeding alone. Latterly, however, I have frequently done so, and have treated wounds of all the vessels of the forearm; of the radial, in the middle of its course, and near its termination, between the metacarpal bone of the thumb and that of the forefinger; of the ulnar and its upper third; of the superficialis volæ and the palmar arch, by flexion of the elbow. I have not had such frequent opportunities of testing this means in the lower extremity, but have employed it occasionally to restrain secondary bleeding from stumps, with marked success, and also in a case of malignant disease in the lower third of the tibia, where profuse hemorrhage followed an exploratory incision.

"A French surgeon has recently impugned the efficacy of flexion as a blood-stopping means. I have therefore had some experiments done at the Infirmary here, with a view to test the effect of this position upon the pulse at the wrist, and at the ankle.

"These experiments were done at different times, and on several different individuals, by Dr. Page, our excellent house-surgeon; and by myself separately, with the assistance of Mr. Kaye, my dresser, with the following results:—

"A. *Upper Extremity.*—1. Forearm bent on arm by muscular action of the individual experimented on. In persons with considerable muscular development, pulse at the wrist entirely stopped.

"2. Forearm bent on arm simply, with the hand flat on the shoulder. Pulse weak and indistinct, sometimes, but rarely, quite stopped.

"3. Forearm bent on arm, with hand pronated. Pulse more weakened, sometimes stopped.

"4. Forearm bent on arm, hand pronated and extended. Pulse usually quite stopped.

"5. Forearm bent on arm, hand pronated, and bent at wrist. Pulse either almost imperceptible or quite stopped.

"6. Forearm bent on arm, with a roll of lint or cambric pocket-handkerchief rolled up and laid in bend of elbow. Pulse always entirely stopped.

"B. *Lower Extremity.*—1. Leg flexed on thigh. Pulse in posterior tibial artery much weakened.

"2. Leg flexed on thigh, and thigh on abdomen. Pulse in posterior tibial stopped altogether almost invariably.

"3. Leg flexed on thigh, with a roll of lint or cambric pocket-handkerchief laid in the bend of the knee. Pulse stopped in some cases, not always; but with flexion of thigh on abdomen also, pulse invariably stopped.

"4. Thigh flexed on abdomen, the trunk bent forward. Pulse materially weakened.

"From these experiments, as well as from those cases of actual bleeding in which this method has been used, it may be fairly inferred that we possess, in overflexion, a blood-controlling agent of considerable power, which can be applied on the shortest notice; which requires neither instruments nor apparatus other than can be obtained in the poorest cottage; which can be put in force by any one possessing neither special knowledge nor operative skill; which is not dangerous in itself; and which may be relied upon with certainty to restrain bleeding, at least temporarily, even when it may fail permanently to arrest it."—*British Med. Journ.*, Aug. 13, 1870.

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44. *On the Removal of Subcutaneous Tumours without Hemorrhage or Loss of Skin.*—Mr. HENRY LEE read a paper on the above subject before the Royal Medical and Chirurgical Society. He stated that he had been in the habit for some time of removing small tumours by India-rubber thread. He found that the pressure of the thread would rapidly, by a process of linear mortification or of ulceration, cut through the base of a tumour. This principle might be

applied to the surface as well as to the base of any growth that might have to be removed, and was peculiarly applicable to vascular tumours of the neck and face. A crucial line of ulceration was first made through the skin by the continued pressure of India-rubber bands or thread. Needles were then inserted below the flaps of skin thus produced, and the skin was dissected back, from the centre towards the circumference, by the pressure of the India-rubber. The base of the tumour was then cut through in the same way, so that the whole of it was enucleated without the aid of the knife. The process went on much more rapidly than might be expected, and it was comparatively safe, as the India-rubber thread always, on account of its elasticity, remained tight. The circulation could not consequently be re-established in a part once strangulated, and so far the danger of blood-poisoning was avoided.—*British Med. Journal*, July 23, 1870.

45. *Method of treating Large Granulating Surfaces by transplanting Epidermis.*—This method, proposed by M. Guyon, seems deserving of trial. The treatment was suggested to him by the consideration of the fact that islets of epidermis existing in a large granulating wound greatly expedite the cicatrization of it, as they form centres from which the formation of new tissue spreads, as well as from the borders of the surface. Two opinions are held by pathologists as to the spontaneous origin of such islets observed occasionally in extensive wounds; that there must be pre-existing in the granulating surface some part of the rete Malpighi, or surface of the true skin; secondly, that this condition is not absolutely necessary. M. Guyon states, that having had his attention drawn to the subject by the rapid healing of a wound in which islets occurred, he determined to attempt to produce similar islets in a wound of the forearm in which the skin had sloughed to a great extent. When the surface had become covered with granulations, and its border showed that cicatrization was commencing, a month having passed after the receipt of the injury, he raised, with the point of a lancet, from the opposite limb, two minute flaps of epidermis, as far as possible avoiding a wound of the true skin. The detachment of the flaps left only a florid spot of skin exposed. He placed them on the centre of the wound, at a little distance from each other, with their deep surface applied to the granulations, and fixed them by two straps of plaster which formed part of the dressing. On the next day they retained their place, in spite of profuse suppuration, appearing a little swollen and whiter than when transplanted. On the third day, they being still in place, M. Guyon raised a larger piece of epidermis, about one-tenth of an inch square, and placed it on the wound, some distance from them. On the next day the three flaps were adherent to the surface, and could be rubbed without detaching them.

Two days afterwards the first pieces looked more pale and thinner, and appeared to be extending at their borders; next day they had united, and formed a pale white patch with epidermis evidently forming around it. The third flap was now firmly adherent, and was surrounded by a little pale band; during the following days this band, and that around the spot formed by the two first pieces, extended more and more. In a fortnight all three spots were united, and the islet so formed continued to spread rapidly.

A second experiment, made on a wound the border of which had not shown signs of cicatrization, failed, the grafts of epidermis falling off after being some days slightly adherent.—*Dub. Journ. of Med. Sci.*, Aug. 1870, from *Gaz. des Hôpitaux*, Jan. 11, 1870.

46. *Stricture of the Œsophagus successfully treated by Dilatation.*—Dr. Morell-Mackenzie read before the Clinical Society an account of two cases of stricture of the œsophagus. The first case was that of a man, aged 58, who had experienced difficulty of swallowing for four or five years. He had suffered no pain; but the difficulty had gradually increased, so that at the time of application he was quite unable to do more than chew meat, swallowing the juice and rejecting the solid residue. Liquids could only be taken in sips. He weighed seven stone twelve pounds. The patient had never had syphilis. Bougies of increasing sizes were passed for twelve months, at the end of which

time he was able to eat meat by cutting it small. He is now able to eat any sort of food without any sense of obstruction, and his weight has increased nearly two stone and a half since he was first seen. The second case was to illustrate the advantage of an "œsophageal dilator" invented by the author. The instrument consisted of a hollow gum-elastic tube, the end of which was made of hard India-rubber, with four slits in the sides. Inside the whole length of the tube was a piece of wire with a bolt at the lower end, and when the bougie had been passed through the stricture the bolt was pushed down so that the India-rubber portion was dilated four sizes larger. The advantages were: (1) great gain of time, an important feature in cases where the prominent symptom is inanition; (2) the greater ease and certainty with which strictures can be dilated than with conical bougies. The patient had dysphagia caused by swallowing soap lees eleven years previously. At first a No. 5 bougie could be passed with difficulty through a very tight stricture opposite the sternal notch. At the end of three months a No. 11 was easily introduced. The patient then discontinued treatment for a year. The dilator was then used, and in a month a No. 16 could be passed with ease. Dr. Mackenzie recommended this instrument for non-malignant and traumatic strictures.—*Med. Times and Gaz.*, July 16th, 1870.

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47. *Treatment of Enlarged Lymphatic Glands.*—Mr. FURNEAUX JORDAN, in a paper read before the British Medical Association, remarked that "the numerous modes of treating enlarged glands are remarkable chiefly for their want of success. The method I now propose, if carefully carried out, I have never known to fail. The ordinary enlargement of lymphatic glands is due to inflammatory action. By far the most efficient remedy in inflammation of any organ is counter-irritation, if only it be established in the proper locality, and to a proper extent. A blister will cure bursitis when nothing else will, and inflammation of a bursa does not differ from other inflammations. In enlarged glands, as in abscess, carbuncle, boils, and erysipelas, the best locality for counter-irritation is not over the inflammation, but around it or adjacent to it—in short, in an independent vascular region. In enlarged cervical glands, a large patch of iodine irritation at the back of the neck, which may be prolonged below the glands, will certainly prove successful in a short time. A shot bag, as heavy as can be tolerated, should be applied over the glands at intervals during the day, the patient being for this purpose in the horizontal posture. I might cite many cases. One, a representative one, under the care of an impartial and competent observer, will suffice. Dr. Hickinbotham, of Nechells, had under his care a man with enlarged cervical glands, which for three years resisted the careful trial of every known treatment. Dr. Hickinbotham then, adopting my views, established a patch of counter-irritation at the back of the neck. In three weeks all enlargement had disappeared. One of the advantages of counter-irritation is this—it gives certain and immediate relief to pain. The persistent tormenting pain of a carbuncle, for instance, may be instantly relieved by a ring of counter-irritation with its transitory smarting."—*Med. Times and Gaz.*, Aug. 20, 1870.

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48. *Case of Necrosis of the Femur without External Inflammation.*—Mr. PAGET read before the Clinical Society of London the history of a case in which an oval swelling six inches in length had appeared in the shaft of the girl's femur, firm and somewhat tender on pressure, but without heat or any affection of the textures covering it. Treatment with rest and iodide of potassium having produced little or no alteration in three months, an incision was made over the swelling, and the periosteum, much thickened, divided, exposing a cavity containing a thin rough sequestrum derived apparently not from the outermost layers of the femur, but from layers just within them. The central point of interest in the case was the fact of necrosis leading to separation of bone being unattended with inflammation of any of the textures external to the periosteum, or with more than a scarcely discernible amount of suppuration around the sequestrum. Mr. Paget added a suggestion that certain loose cartilages in joints may be really due to a necrosis following an injury, death and separation

of a bit of bone occurring without inflammation of adjacent textures.—*British Medical Journal*, July 16, 1870.

49. *Removal of a Polypus of the Larynx by Ablation of the Thyroid Cartilage.*—M. Krishaber read a very interesting case of this description to the Paris Société de Chirurgie, and which was subsequently reported favourably upon by M. Guyon. The following are the author's conclusions: 1. There are cases of polypus of the larynx, the destruction and extirpation of which cannot be accomplished by the natural passages. In such cases we can open the larynx directly. 2. The aperture may be made according to the nature and position of the tumour either in the membranes or the cartilages. 3. When the polypus is implanted in Morgagni's ventricle, the incision should be made in the thyroid cartilage. The space thus obtainable is sufficient for the extraction of even a large polypus, without division of the thyro-hyoidean or thyro-cricoidean membranes. The section of the cartilage may be so made as to avoid injury to the vocal cords, and so leave the voice intact. The presumed ossification need not present a contra-indication, although it delays the healing. 4. Laryngotomy, consisting in dividing *en masse* the whole body of the larynx, membranes, and cartilages, should be rejected. When, by means of the laryngoscope, we have ascertained the exact site of the tumour, it suffices to open the larynx at such site. 5. Of all procedures hitherto employed for the extinction of polypi, the operation here described is that in which incision of the larynx is least extensive. It is to this I attribute the recovery of my patients. I propose to name this operation "Restricted Thyroideal Laryngotomy."—*Brit. and For. Med.-Chir. Rev.*, July, 1870, from *Revue Photographique des Hôp. de Paris*, Sept. 1869.

50. *New Operation for Bony Anchylosis of the Hip-Joint.*—Mr. Adams, Surgeon to the Orthopædic and Great Northern Hospitals, read a paper before the British Medical Association at its recent meeting, in which, after some general observations on true and false, or bony and ligamentous anchylosis, and the relative frequency and rapidity with which these conditions are produced after various forms of disease, he referred to those cases of bony anchylosis of the hip-joint which called for surgical interference in consequence of the anchylosis having been allowed to take place, with the limb in a deformed position. The inconveniences arising from bony anchylosis of the hip-joint depend upon the extent and direction to which the limb may be contracted and drawn into a deformed position. In females, when the thigh is flexed and adducted, so that the knee is drawn across the opposite thigh, the orifice of the vagina is often seriously interfered with, so that urination is performed with difficulty, and even a catheter cannot be passed, as occurred in the case recorded by Dr. Sayre; the parts, moreover, were kept in a constant state of excoriation. The author then referred to the various operations which have been proposed and adopted for bony anchylosis of the hip-joint, with deformity, such as Rhea Barton's operation, and also that proposed by Louis Sayre, of New York, which he had performed in two cases. In all these operations it was necessary to make a large external incision, so as to admit of the use either of an ordinary saw or of the chain saw; and, although in three cases recorded the result had been successful, so far as rectification of the deformity was concerned, the possibility of the restoration of motion by the formation of a false joint was not clearly established. The author, therefore, advised that the object should be limited to the rectification of the deformity, and obtaining bony anchylosis, with the limb in a straight position. This he proposed to accomplish by a subcutaneous division of the neck of the thigh-bone within the capsular ligament, using only a tenotomy knife and a very small saw, three-eighths of an inch in width, with one inch and a half cutting edge, at the end of a small shank three inches in length. A case in which he had successfully performed this operation was brought before the meeting, and no inflammation whatever had followed the operation. The author therefore felt justified in comparing this operation of the subcutaneous division of bone—or subcutaneous osteotomy—with the subcutaneous division of tendons. The case in which Mr. Adams

performed the operation was one for bony anchylosis of the right hip-joint, with the thigh flexed, and contracted to a right angle with the pelvis, so that the limb was utterly useless. Bony anchylosis, with the limb in a straight position, had been obtained as the result of the operation, and the man is now enabled to walk without the assistance of either a crutch or stick; and the bony consolidation at the seat of operation is such as to enable him to bear the whole weight of the body on the limb which had been operated upon.—*Med. Times and Gaz.*, Aug. 20th, 1870.

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51. *Enterotomy in Cases of Ileus.*—Dr. FRANTZEL describes in *Virchow's Archiv*, 1869, two cases in which an opening was made into the intestine for the relief of ileus. In the first of these cases the obstruction of the bowel was the result of *carcinoma recti.* The operation was attended with no difficulty, and the patient experienced great and immediate relief. Twenty-four hours subsequently, however, in consequence of a number of perforations through the coats of the intestine, which occurred between the point of operation and the rectum, diffused peritonitis set in and proved fatal in a few hours. In this case the operation would, no doubt, Dr. F. believes, have been followed by more permanently beneficial results had it been resorted to earlier. In the second of Dr. F.'s cases, which occurred in a robust young man, twenty-two years old, symptoms of ileus suddenly set in without any apparent cause. On the thirteenth day of the disease, all other available means having been tried in vain, Dr. F., as a last resort, performed the operation of enterotomy. The operation was readily performed, the opening being made as usual into the lower bowels. The artificial anus which resulted was kept open by an appropriate tent. After the regular action of the bowels was reinstated, the artificial anus was allowed to close, and the recovery of the patient was complete.

In order that the operation of enterotomy in appropriate cases may prove entirely successful, it should not, according to Dr. F., be deferred, after other remedies have failed to give relief, and it becomes evident without it a fatal result is imminent. In resorting to the operation, it should never be as a means of discovering and removing the cause of the intestinal obstruction, as it is scarcely possible that either object can in any case be effected. The opening into the intestine in every instance must be made above the seat of the obstruction, in order that a fatal result may be avoided, and time gained for the removal of the obstruction. Should the obstruction in the lower portion of the intestine, that is, the portion below where the opening has been effected, be found to be irremovable, the life of the patient may be preserved by continuing open the artificial anus permanently.

It is certain that in many cases of ileus, resulting from an entwisting or an invagination of a portion of intestine, that by the complete emptying of the intestine, which is obtained by the operation of enterotomy, such a condition of things is brought about as may result ultimately in the removal of the morbid state of the intestine.

In deciding upon the operation of enterotomy in cases of ileus, an inquiry into the nature and seat of the intestinal obstruction is unnecessary. The only question to be settled is as to the part at which the opening into the intestine is to be made, so as to be above the obstruction. To solve this question, the surgeon must resort to percussion by means of the pleximeter. When any portion of the abdominal parietes yields a metallic sound, it is certain that there exists there an open fold of intestine above the point of obstruction, and here it is the opening should be made.—*Centralblatt f. d. Medicinischen Wissenschaften*, April 30, 1870. D. F. C.

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52. *Herniotomy after supposed Successful Reposition of Bowel by Taxis.*—Dr. M. MUELLER (Cöln) relates, in *Von Langenbeck's Archiv* (XII. 1.), a case of incarcerated inguinal hernia of the right side, in a man twenty-eight years of age, and which was, apparently, successfully reduced by taxis. The symptoms of strictured intestine, however, still continued. On the second day after the supposed reduction they were still present. It was then concluded that the contents of the hernia had been returned *en masse*, with the stricture of the

intestine still continuing at the neck of the sac; a conclusion rendered probable by there being felt in the immediate neighbourhood of the inner ring a soft elastic tumour. The inguinal canal being laid open just within its abdominal orifice was found a portion of the hernial sac of the thickness of a finger firmly embracing, at its upper part, a fold of intestine. The sac being laid open with much care until the site of the stricture was reached; when the latter was divided the patient experienced immediate relief. Some degree of peritoneal inflammation set in, but was dissipated within six days, and the patient was entirely well at the end of four weeks.—*Centralblatt f. d. Medicinischen Wissenschaften*, May 21, 1870. D. F. C.

53. *Operation for Strangulated Hernia without opening the Sac.*—Mr. Geo. Y. Heath strongly advocates this operation, and says:—

"I know it may be said that this method cannot always be adopted; and indeed, in looking over some recently published cases of herniotomy, I must acknowledge to have felt some surprise at the frequency with which the sac has been opened.

"It has fallen to my lot, as indeed to that of most operators, to operate in such cases pretty frequently; and for the last fifteen years I have rarely found it necessary to open the sac. Unless, indeed, there be some special reason for doing this, such as the great length of time during which the rupture has been down, the manifest pressure of a large mass of omentum, or indubitable signs of change in the bowel, such as emphysema, putrid smell, or the like, I invariably attempt the reduction without opening the sac; and, according to my own experience, the test of the propriety of the proceeding is its practicability, for I have never in my own practice known a fatal result where the sac was not opened."—*Address in Surgery* in *Brit. Med. Journ.*, Aug. 13, 1870.

This method of operation has been strongly advocated by Dr. Erskine Mason, of New York. (See No. of this Journal for October, 1868, pp. 588–9.)

54. *Treatment of Hæmorrhoids by Taxis.*—Dr. Maclean read a paper on this subject before the British Medical Association. He remarked that hæmorrhoids are extremely common, but that we are rarely called upon for advice till the disease has assumed a stage in which ordinary remedies are of no use, and active procedure is necessary. He referred to the description of hæmorrhoids given by Erichsen, to the correctness of which he testified. From this it appears that all kinds of piles are composed of a sac or cells with fluid contents; and so long as this remains the suffering persists. An obvious though hitherto unnoticed plan of treatment consists in supporting the weakened walls, and then emptying the sac in the mode usually adopted in the case of hernial tumours. He was led to the discovery of its efficacy from employing it in a case of piles occurring during labor. The method he proposes consists first in getting a free evacuation of the bowels by some aperient medicine, and when the effects of the medicine have passed off, he orders the parts to be well fomented for a few hours, to relieve as much as possible the irritation and spasm of the parts. He then proceeds to apply the taxis to the tumour. Taking a piece of soft, well-oiled cloth, and grasping one of the tumours—if there be more than one—with two fingers and the thumb, thereby encircling the enlargement, and curving the fingers so that they cover the fundus of the pile, he proceeds to press the tumour towards the mouth of the sac, with a kneading motion continuing for a little time until he finds the swelling become gradually smaller under the manipulation, and there only remains the thickened integument, and whatever effusion of serum may have taken place into the cellular tissue. In the beginning of the application of this process the pain is sometimes considerable; but as the tumour becomes emptied, the pain decreases, and when fully reduced a great sensation of relief is experienced. Having completed the reduction of the first hæmorrhoids, the same procedure is applied to the others in rotation; and the whole being reduced, astringent lotions or ointments are applied to the part, and the operation is complete. In internal piles the application of the taxis is conducted in the same manner; but here it is necessary to cause the extrusion of the tumours, and this can be done, as in the removal

by the ligature, by passing an injection of tepid water into the rectum, and then getting the patient to expel them by straining, when the same process is gone through as in external piles, and on the return of the bowel attention is given to the constitutional disorder, and an injection of astringent lotions, &c., is administered.—*Lancet*, Aug. 20, 1870.

55. *Improved Operation for Fistula in Ano.*—Instead of the bistoury impinged upon the finger *in ano*, and brought down through the sphincter with some difficulty, Mr. WEEDEN COOKE has employed a scissors, the blades being separately passed into the fistula and rectum, and then connected by means of a movable screw. Mr. Cooke operated with this instrument, which was made at his suggestion by Messrs. Weiss, at the Royal Free Hospital on the 23d of April. Having introduced his fingers into the rectum, he passed one blade of the instrument into the fistula up to the extreme point; he then passed into the rectum the other blade up to a corresponding point. The two blades were then connected by a small screw, and with one rapid scissors-action the operation was completed in a second of time. The pain was infinitely less than that produced by the bistoury. As the position required for this operation renders the use of chloroform very difficult, it is well known that the shrinking of the patient often gives trouble to the surgeon, so that the rapidity of this method of operating is important both to the patient and the surgeon; and, in the case referred to, its efficiency was verified by Mr. Cooke's colleagues who were present.—*The Practitioner*, July, 1870.

56. *Puncturing the Bladder above the Pubes.*—Prof. DITTELL observes that notwithstanding the ease with which this operation may be performed, except in very fat persons, it is yet generally avoided as far as possible. This arises from the subsequent difficulty of dealing with the catheter. Where the urethral passage can be speedily re-established, everything goes on well. But this is not always so when the urine has to be discharged by the artificial aperture, owing to the great difficulty of retaining the catheter without giving rise to various complications, such as irritation of the mucous membrane of the bladder, cystitis, pyelitis, &c. The end of the rigid catheter prevents all movements on the part of the patient, while its retention causes it to be covered with incrustations, which irritate the mucous membrane. The idea occurred to Prof. Dittell of substituting for the rigid metallic catheter one of vulcanized caoutchouc, and the advantage he has derived from this is the cause of the present communication. He narrates the case of a patient who suffered from retention of urine in consequence of a tumour of the prostate. Between the 17th November and the 19th August he underwent the operation of puncture three times, the catheter on two occasions having slipped out without (he being a fat man) it being possible to reintroduce it. On the last occasion, after remaining in two or three weeks, it caused great pain and induced cystitis, and the following simple apparatus was substituted. This consisted of a catheter of vulcanized caoutchouc, having at its end a round somewhat arched disk. From the other side of the disk another caoutchouc tube branched off, which communicated with the catheter, and hung freely down. The catheter was passed down as far as the disk, and secured. All irritation now subsided, and the patient was able to move about without inconvenience, the urine being discharged from time to time through the depending tube. When the catheter becomes incrusted, which it does far less rapidly than is the case with metallic catheters, it is replaced by another. It will probably be best to employ a metallic catheter for the first fortnight, before resorting to the caoutchouc one, as in that time a canal will have been formed from the wound, which will allow it to be introduced and replaced without difficulty. This procedure does away with the complications which usually ensue on this operation, and by rendering it less dangerous, it will probably render its performance more frequent.—*Brit. and For. Med.-Chir. Rev.*, July, 1870, from *Allg. Wien. Med. Zeit.*, Jan. 4th.

57. *Effects of Shortness of the Frænum of the Prepuce.*—M. Jansen observes that some years since his attention was called to the frequency with which shortness of the frænum of the prepuce occurs, and to the relation which it bears to phimosis. Having under his charge a considerable body of troops, he availed himself of the examinations, which are officially made in the Belgian army, to ascertain the proportion in which the defect prevailed. Of 3700 soldiers examined, he found that 3153 (85.2 per cent.) had the prepuce of normal conformation; 458 (12.3 per cent.) had shortness of the frænum; and 89 (2.5 per cent.) great narrowness of the prepuce. Thus 547 out of 3700 soldiers had this vicious formation in a greater or less degree. He examines in detail the various consequences that may ensue on this state of things, and concludes as follows: "1. This shortness of the prepuce, which has hitherto been so little noticed, is deserving the attention of practitioners. 2. In all these cases it is more or less difficult to expose the glans, and a certain degree of phimosis consequently always exists. When this is highly marked, the prepuce also exhibits at the same time a manifest narrowness. 3. This narrowness of the prepuce may give rise to accidents due to the absence of cleanliness; accidents dependent upon the traction exerted by the frænum on the meatus, and interfering with erection, ejaculation, and micturition; and to numerous accidents due to the phimosis itself. 4. Whatever treatment the patient may be submitted to, as long as the vice of conformation in question is not removed, the above accidents will not be remedied. 5. When there is no narrowness of the extremity of the prepuce, the division of the frænum suffices. Otherwise, circumcision must be performed, taking care to leave the prepuce as long as possible, or to effect its dilatation."—*Brit. and For. Med.-Chir. Rev.*, July, 1870, from *Journ. de Méd. de Bruxelles*, Jan., Feb., March.

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58. *Observations on the Treatment of Gonorrhœal Orchitis by Debridement of the Testicle, as recommended by Vidal (de Cassis).*—M. Salleron, in an instructive article in the *Archives Générales* for February last, on this subject, shows how much caution should be exercised in receiving the statements of even so high an authority as Vidal. That surgeon, in his *Pathologie Externe*, states that, as orchitis is an inflammation accompanied by strangulation, owing to the dense fibrous tunic which envelopes the testis, the best treatment is to make a small incision into the tunica albuginea by means of a lancet or bistoury. The operation, he says, causes little pain, and is quite harmless, for among 400 patients so treated, he never met with any accidents whatever, while the patients very speedily obtained relief. This little operation had likewise promptly succeeded where other most energetic means had failed to be of any use. That the practice has not proved so successful in the hands of others is shown by the fact that it has not become generalized; and M. Salleron, in this paper, relates two cases to show that it may do much eventual mischief. In both of these prompt relief followed the puncture, but the whole of the substance of the testicle was also, in both, discharged through the wound in spite of every care taken to prevent it.

M. Salleron shows that, from the anatomical structure of the parts, this result must be expected, and he does not accept in explanation of Vidal's not having met with such effects, the suggestion advanced by Gosselin and others, that he did not penetrate the tunica albuginea at all. It is highly probable that among the 400 cases operated upon by himself and pupils this was sometimes the case, and, as in one-half the cases of orchitis, there is accompanying effusion into the tunica vaginalis, this might even not unfrequently happen; but there can be no doubt that in many of his cases Vidal penetrated the tunica albuginea, and probably contented himself with noting the immediate relief obtained from the operation.

From what he has himself witnessed, and from the two cases which he relates, M. Salleron considers that he is justified in concluding: "That in gonorrhœal orchitis, even parenchymatous, the debridement of the tunica albuginea is a useless operation when not dangerous, and very dangerous when we might suppose that it will be useful."

59. *A New View of the Origin and Propagation of the Venereal Disease and its Successful Treatment by Inoculation with Vaginal Discharge.*—Mr. J. MORGAN, Surgeon to Westmoreland Lock Hospital, Dublin, expresses some novel views on this subject in a paper published in the No. of the *Dublin Quart. Journ. of Med. Sciences* for August last. These views he says are the deductions from 1582 cases observed by him during the last two years in the hospital to which he is attached, and which indicate a new source of contagion from which the usual soft or chancroid venereal sore is derived.

"The discrepancy," he remarks, "amongst syphilographers as to the variations in the forms of the disease and its after consequences in the male and female, always seemed difficult of explanation, and led me to make a close examination by experiment as to its nature and origin in the patients under my charge at the hospital as compared with male patients met with in private and general hospital practice. I could not fail to observe that in this city, the frequency of chancroid or soft sores in the male uncomplicated with constitutional signs, was excessive in proportion to those cases in the female who suffered from genital sores, while on the other hand the frequency of constitutional symptoms in the female was excessive in proportion to the male."

The frequent coexistence of a vaginal discharge of a muco-purulent form with the earlier stages of constitutional syphilis, he thought afforded some clue to the solution of this question, and led him to make some experiments, the results of which he thinks, shows "that the product of the vaginal discharge of a patient suffering from syphilitic infection, is a chancroid or soft sore, when the discharge is introduced under the skin or applied to an abraded surface. It is also shown that this sore is propagated as a chancroid or soft sore, and is again (so far as my experiments went) capable of indefinite propagation still as a soft sore or chancroid."

"A more remarkable power," he says, "possessed by this vaginal secretion is the production of a chancroid by inoculation on the patient's own person." * * * "I have on several occasions taken the secretion as wiped from the os uteri and inoculated unsuccessfully with it, while from the vaginal discharge I have been successful.

"I have inoculated from the vaginal secretion of cases of uterine ulcer and from the ulcers themselves without any result.

"I have also inoculated the gonorrhœal discharge of the male without result.

"In all my inoculations the result has invariably been the characteristic pustule and soft or chancroid sore, capable of reproduction; the question therefore arises, was the original affection a chancroid or soft sore capable of infecting the system, or a hard sore, which is admittedly so capable; I cannot give any information on the latter point, as unfortunately in the only two cases of hard sore which have been admitted to the hospital during the last eight months I did not inoculate. So as to be capable of transmitting a sore by inoculation from the vaginal secretion it seems necessary that the patient must be suffering from the earlier stages of constitutional infection, whether as yet latent or developed."

The vaginal secretion, Dr. M. states, retains its power of infection for a considerable time after the healing of the primary sore or of the first constitutional evidence.

In all the inoculations made by Mr. M. the products from the artificially generated chancroid was, he stated, a chancroid, though generated from and on syphilitic subjects.

"With regard to the propagative property of the poison in women, it might be supposed that once the sore is healed there is no further danger of a sore being communicated, which even a chancroid, as I believe it might appear in an untainted subject, would be lethal to the system by conveying the syphilitic poison. This error the illustrative cases show fully would be a serious one, as the non existence of a genital sore in the female is no absolute guarantee of the non-existence of contagiòn power."

Mr. M. has found the following variations in inoculation with the vaginal discharges:—

"The activity of the discharge seems to vary—thus, immediately before or after the menstrual period it is less active.

"The same discharge would succeed in some cases and not in others, and though failing to produce a specific pustule one day it would not on another.

"As in vaccination, the admixture of a little blood in making the inoculation generally rendered it nugatory.

"The more robust and vigorous the patient, the more perfect was the inoculation, and the more persistent it became, being indeed difficult to heal.

"Every succeeding generation from the vaginal discharge seemed progressively to increase in inoculative power.

"The more infected the recipient the more difficult to inoculate, and the greater the tendency to heal.

"Every succeeding inoculation on the patient's own person seemed to increase in inoculative power."

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60. *Investigations as to the Cause of the Great Gravity of Anthrax and Furuncles of the Face.*—The numbers of the *Archives Générales de Médecine* for June, July, and August last, contain an elaborate article on this subject, by J. L. Reveratin, Interne Lauréat des Hôpitaux.

The following are his conclusions:—

1. Anthrax and furuncle of the face are very grave affections.
2. This gravity is owing to their being prone to be complicated with phlebitis.
3. Facial phlebitis tends to a fatal termination, either by its extending to the sinus of the dura mater, or by becoming the source of purulent infection.
4. Anthrax in the lips are complicated more frequently than when situated in other parts of the face with phlebitis, which fact is to be accounted for by the particular structure of the lips.
5. Anthrax of the lips is entirely different from malignant pustule.
6. The extension of phlebitis to the orbit, shown by the presence of exophthalmia, shows almost positively that the sinus has become affected.
7. Incision, made as rapidly and as largely as possible, appears to be the best means of preventing and sometimes of arresting the complication of phlebitis.

OPHTHALMOLOGY.

61. *Calabar Bean in Suppuration of the Cornea.*—M. Galezowski expresses himself (*Annuaire de Thérapeutique*, 1870) in favour of the instillation of solution of Calabar bean in the treatment of this form of ophthalmic disease. The contractile action exerted by the bean on the vessels of the cornea opposes their dilatation and congestion, and singularly aids the cicatrization of wounds. Belladonna, which produces opposite effects, should, he thinks, be discarded in these affections.—*The Practitioner*, July, 1870, from *Annuaire de Thérapeutique*, 1870.

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62. *Luxation of the Lens; Mechanism of Accommodation.*—M. Dufour reports three cases, of which the two first particularly allowed of conclusions being drawn as to the state of the accommodation. When, according to the theory of Helmholtz, the lens in the state of rest of the accommodation is kept by the zonula stretched out and flattened, then it may be expected that the (luxated) lens freed from the zonula would be the more convex; it must, therefore, by lens-luxation appear short-sightedness, which is yet more increased when the lens falls into the anterior chamber, so that the space between it and the cornea is abolished. The investigation of the cases (three brothers and sisters, all of them suffering from spontaneous luxation of the lens of both eyes) corroborated the above opinion completely.

In the first case the lens in the left lay chiefly, with exception of its upper border, in the anterior chamber, therewith myopia, about ⅓—½ (with much amblyopia) subsisted; in the right, by simple dislocation of the lens inwards, the myopia reached only $\frac{1}{7}$; accommodation seemed not to be present. The myopia cannot be due to sclerectasia posterior, the ophthalmoscopic appearances of it were altogether wanting, and the eye was not of a myopic shape. Moreover, by extraction of the lens the left eye was very hypermetropic ($\frac{1}{3}$), more so than it ought to be by previous emmetropia. After a longer time the lens in the right eye fell into the anterior chamber, by which increase of the myopia to about $\frac{1}{5}$; after extraction, hypermetropia $\frac{1}{3}$—$\frac{1}{2}$, with some irregular astigmatism.

In the second case, in the left eye the edge of the lens extended across the pupillary region; the oblique position of the lens induced monocular diplopia, whereby the one image with half the lens, the other without it, was projected. The refraction corresponding to the part of the pupil independent of the lens was hyp. $\frac{1}{13}$, whereas the part corresponding to that yet furnished with lens, myop. $\frac{1}{2}$. The difference in the refrangibility of the two parts of the same eye, $\frac{1}{1\frac{4}{5}}$, is in this much greater than the effect of the lens in a state of rest of the accommodation corresponds to, it betokens much more an accommodation of 4—5 inch distance. (In the right eye of this person the lens had fallen down altogether into the vitreous; it suffered from very considerable amblyopia.)

The action of the mere advance of the lens by evacuation of the aqueous humour Dufour found by repeated experimentation to be equal to an increase of refrangibility of about $\frac{1}{12}$—$\frac{1}{14}$, in accordance with previous definitions of Von Graefe's.—*British and Foreign Med.-Chir. Rev.*, July, 1870, from *Centralblatt*, March 12, 1870.

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63. *Structure of the Zonula Ciliaris.*—Dr. F. MERKEL, in a recent Dissertation gives the results of his researches respecting this structure of the eye, and which he states demonstrate the zonula to present a triangular form on section, and that it arises from the apices of the ciliary processes and extends to the margin of the capsule, of the lens, to the anterior and posterior surfaces of which it is attached. The so-called canal of Petit does *not* exist in the living animal, and the zonula contains no fluid but what it is capable of imbibing. It commences at the pars ciliaris of the retina, to which it is most intimately connected; and here consists of the fibres so well described by Henle, which can be easily demonstrated by tearing away the zonula in an eye that has been soaked for a few hours in a solution of chromic acid containing one-sixth of a grain per ounce. The fibres are very fine, stiff, and straight, and are probably not united into a membrane, but lie free on the surface of the vitreous. They are to a certain extent elastic, as they often assume a wavy form. Near the commencement of the zonula ciliaris are numerous cells, each with large nucleus and small amount of cell-substance, which form only a single layer, though by no means lying in the same plane. Besides these most posteriorly situated fibres, the ciliary zone, as it passes forwards towards the apices of the ciliary processes, increases considerably in extent by the accession of fresh fibres. The fibres pursue three main directions: a few turn back and end in the vitreous, the majority run from the apices of the ciliary processes towards the lens, and a few run circularly; the latter have a more internal position than the former. Dr. Merkel considers the canal of Petit (so generally admitted) to be an illusion, and due to the facility with which the fibres break down and separate from each other; and he supports his view by reference to the results obtained by injections made with Prussian blue, and by preparations made by staining with nitrate of silver. In neither case can the presence of a distinct membrane be demonstrated. In regard to the physiological value of the zonula, Dr. Merkel entirely accords with the views expressed by Schwalbe—that it constitutes the antagonist of musculus ciliaris, and effects the flattening of the lens.

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64. *Lymphatic Spaces of the Eye.*—The last number of the *Quarterly Journal of Microscopical Science* contains a good *résumé* of SCHWALBE's paper on the lymphatic spaces of the eye, contributed to the first part of Schultze's *Archives of Microscopical Anatomy* for the present year. In this paper are

described the lymphatic spaces of the posterior division of the eyeball, which include the perivascular spaces of the retina, the perichoroid space with its efferent channels, and, finally, a lymphatic space between the outer and inner sheaths of the optic nerve, which, without communicating with the other two, opens directly into the arachnoid sac of the brain. Between the inner surface of the sclerotica and the outer layer of the choroid is a space which was recognized by Arnold as a serous cavity, and to which the name "arachnoidea oculi" might be given. It is distinct from the lamina fusca, though in part occupied by connective tissue, elastic fibres, and stellate pigment cells. The opposed surfaces are smooth and shining, and, after treatment with nitrate of silver, exhibit epithelial markings with oval nuclei. It is most distinct in white rabbits, but cannot be demonstrated in the eye of man, on account of the difficulty of obtaining fresh human eyes. When filled with a coloured fluid by injection, the space was found to reach backward to the neighbourhood of the entrance of the optic nerve, and forward as far as just under the ciliary processes. The injection left the ball at four points corresponding to the entrance of the venæ vorticosæ, and cross sections showed that the veins were encircled by the injection. On escaping from the globe, the injection filled the capsule of Tenon, which again was found to communicate backwards, by a cylindrical channel surrounding the outer fascia of the optic nerve, with the arachnoid space of the skull. Besides the canal just spoken of as surrounding the whole optic nerve, to which the author gives the name "supravaginal" space, there is another included between the two fasciæ of this nerve, which he calls the "subvaginal." This is continuous with the arachnoid, but does not communicate with the proper lymphatic spaces of the eye.—*Lancet*, May 7th, 1870.

MIDWIFERY.

65. *Dystocia depending on the Simultaneous Presentation of the Two Heads of Twins.*—Dr. Rinter was called by a midwife to a woman twenty-eight years of age. In this case the child's head, after a breech presentation, was locked by complete absence of uterine contraction. Dr. Rinter found the whole child born save the head, the uterus inert, and the mother very feverish. The child was dead, and in vain did the accoucheur try to find, with his finger, the chin or the mouth; he could only feel the cranial bones without succeeding in making out the sutures. By the hand laid on the abdomen the presence of a second fœtus was made out. Tractions on the trunk of the child already extruded were unsuccessful. At last the forceps were used, and with much difficulty the head was extracted; but the operator was dismayed on seeing that it belonged to the *second* fœtus. The cord was soon divided, and a living boy handed to the nurse. The head of the *first* child was now sought for, the chin and mouth easily found, and the extraction effected. The placenta followed immediately; it was very large, and common to both children. The mother did well. Happily Dr. Rinter did not resolve to *diminish* the head when he found it so completely locked, and the child dead.—*Lancet*, July 2, 1870, from *Gaz. Méd. de Strasbourg.*

66. *On the Influence exerted by Chloral on the Pain of Parturition.*—The *Edinburgh Medical Journal* for August, 1870, contains an interesting article on this subject by E. Lambert, Esq. The following are the author's conclusions:—

1. Chloral is an agent of great value in the relief of pain during parturition.
2. It may be administered under favourable circumstances during and at the close of the second stage, with the result of producing absolute unconsciousness in the same sense in which we understand unconsciousness under chloroform.
3. When thus given successfully, it has this advantage over chloroform, that it requires no interference with the patient.
4. It is desirable to retain chloroform in the position which it at present

occupies in widwifery, and to reserve for the agency of chloral the first stage of labour. If, however, chloral or some agent having analogous properties is found successfully to relieve the pain of uterine contraction, the use of chloroform will be restricted to a lesser period of the duration of labour, or to the facilitation of manual or instrumental interference.

5. It is demonstrated that a labour can be conducted from its commencement to its termination, without any consciousness on the part of the patient, under the sole influence of chloral.

6. The exhibition of chloral in nowise interferes with the exhibition of chloroform.

7. The proper mode of exhibiting chloral is in fractional doses of gr. xx every quarter of an hour until some effect is produced; and according to the nature of that effect the further administration is to be regulated. Some patients will require doses of ʒj; and it is better to produce an anæsthetic effect by ʒiij given in the space of two hours than by ʒj given singly.

8. The effects of chloral are continued beyond the period of completed parturition, and the repose experienced by the patient after her labour is one of the favourable circumstances to be noted in considering its application to childbirth.

9. Any stimulating effects, in the form of general excitability, occasionally observed during the administration, have passed away very rapidly.

10. Chloral not only does not suspend, but rather promotes uterine contraction by suspending all reflex actions which tend to counteract the incitability of the centres of organic motion.

11. Labours under chloral will probably be found to be of shorter duration than when natural, for unconscious contractions appear to have more potent effects than those which are accompanied by sensation of pain.

12. Experiments are required in order to determine whether there exists the same antagonism between ergot and chloral as is known to exist between strychnia and chloral.

13. The general conditions under which chloral is to be administered are the same as those which regulate the administration of chloroform, and the rules laid down by Sir James Simpson in connection with this subject must be rigidly adhered to.

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67. *Duration of Gestation.*—Dr. AHLFELD investigates with great care the problem of the *duration of gestation.* Taking 219 cases observed by himself, by Hecker, and by Veit, he finds that conception took place on an average 9.72 days after the *first day* of menstruation, and in 161 cases on an average 5.28 days from the *last day* of menstruation; but it most frequently took place within three days, Faye arrived at a similar result.

As to the question whether the virginal os uteri is more easily disposed to conception than the gaping os of women who have borne children, he finds that, comparing 130 pluriparæ with 75 primiparæ, the same average of about ten days after the first day of menstruation was observed.

Taking 425 women, whose children seemed mature, the average duration of gestation was 269.91 days, reckoning from day of conception. Hecker's tables give an average of 273.52 days. The range was from 231 days to 329, so that there is manifestly a fault in determining the day of conception.

Ahlfeld gives a table of thirty cases, including six from Faye, of presumed single or well-defined coitus. Gestation varied from 233 days to one case of 313 days. Both these extremes are taken from Faye. The greater number ranged within 270 and 275 days. The average of all was 269.17 days, which corresponds closely with the period obtained by other modes of observation. (It is to be remarked that the weight of the child in Faye's minimum case was 3000 grammes, and in the maximum case of 313 days it was only 2530. Since 3000 grammes is below the average weight of a mature child, it seems only reasonable to infer that conception took place considerably within 313 days. With this exception no other case out of the thirty exceeded 287 days, and of the remaining twenty-eight all were below 282.—R. B.)

Ahlfeld then refers to the law enounced by Cedershjöld that labour takes place at the tenth menstrual epoch due, so that we should multiply the individual interval between two periods by 10. In many women this interval is not 28 days, but 27½, 28½, 29, 30. Hence a duration of 275, 285, and so forth, is explained. By most authors, says Ahlfeld, the duration is placed too high; 280, even 275 days, is too high. To estimate the expectancy of labour Naegele added seven days to the first day of the last menstrual appearance, and then reckoned three calendar months back. Thus he took as the date of conception the second day after the cessation of menstruation, with an average duration of menstruation of five days. Thus he arrived at an average of 273 days, which is very close to the reality. Ahlfeld's own plan is to take the tenth day from the beginning, the fifth from the end, of menstruation. There is a possible error in both ways of fixing the date of conception, and to illustrate this point he gives a table of 261 cases, calculated according to both, and showing the actual day of labour.

As to the sensation of the movements of the child, he shows that in 43 cases, in which the day of its occurrence was noted, it ranged from 108 to 134 days, the average being 132.77 days.

The duration of labour in primiparæ was, on an average, 20 hours 48 minutes, and in pluriparæ 13 hours 42 minutes.—*British and Foreign Medico-Chirurgical Review*, July, 1870, from *Mon. f. Geb.*, 1869.

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68. *Ovum in a Case of Blighted Embryo.*—Dr. M'Clintock, in a communication made to the Dublin Pathological Society, Jan. 22, 1870, said the ovum or part of the ovum may be retained in the uterus for several weeks or months after the embryo has been blighted, and this fact, if overlooked or disregarded, may occasionally place a practitioner in an exceedingly embarrassing position. The specimen, which I now exhibit, is a very striking illustration of this prolonged retention of a blighted embryo. Any one familiar with the examination of the human ovum would say that this was a conception of five or six weeks. The little embryo, very perfect, and not much larger than a house fly, can be seen hanging by the umbilical cord; a casual observer would naturally say this conception took place six weeks or two months ago. The fact is, however, that in this case conception took place seven months ago, and it is this which imparts to the case its clinical interest. The lady had had several children previously, and so ought to have been tolerably familiar with the subjective phenomena of pregnancy. She had been carrying this ovum for six months; but of course, the simple explanation is, that it was blighted at the end of six weeks from the time of conception, and retained. There is another fact connected with cases of this kind, that while all vital connection between the ovum and the uterus has ceased, the ovum may be retained in the uterus subsequently, and finally expelled in a non-putrefactive state, which is a very curious and inexplicable circumstance. This is a good illustration of it; for although there is no doubt the vitality of this ovum had ceased several months ago, it was not expelled putrid, nor was there any offensive odour connected with it. For the last three or four months the lady had been greatly tormented with hemorrhage. When I was asked to see her, and was told of the seven months' pregnancy, and of the hemorrhage, I began to think the case was one of placenta prævia; but a very superficial examination was enough to show how erroneous this supposition was. The abdomen was flat and resonant all over, and on instituting the requisite examination internally I found an ovum partly extruding from the uterus; it was removed easily; whereupon the hemorrhage ceased. The retention of this had given rise to some irritative fever; for the lady had occasional rigors; the pulse was frequent; and her skin was dry and hot. I have before alluded to considerations of a medico-legal nature connected with such cases as these. The size and development of the ovum would be no proof of the time at which conception took place; hence if a woman some months separated from her husband, expelled such an ovum as this, and a practitioner were to say that it was only a conception of a few weeks, he would cast an imputation on the woman's character that might involve him in disagreeable consequences. Such a case as this, therefore, shows the necessity of great caution. Dr. Matthews Duncan, of Edinburgh, has described a case in which

an ovum of a similar kind was retained seven months in utero, the lady having in the meantime performed a voyage from India to Edinburgh, without the ovum being expelled. In this case there was no trace of an embryo; to use the expression applied to the eggs of hens, and which is quite appropriate here, it was truly an addled ovum.—*Dublin Quart. Journ. Med. Science*, Aug. 1870.

[A number of cases of blighted fœtus long retained in the uterus without becoming putrid, have been recorded in different numbers of this Journal.—ED.]

69. *Pregnancy without Menstruation.*—Dr. JAS. YOUNG read to the Obstetrical Society of Edinburgh some statistics which he had collected, showing how frequently pregnancy had occurred where the women had never menstruated more than once or twice during ten or twelve years, and where six or eight children had been born. Among other cases, the following two might be specially mentioned :—

CASE I.—Mrs. M. was married on 10th September, 1859; menstruated in October thereafter, but not again to this date (June, 1870), and she has had six healthy living children.

CASE II.—Mrs. J was married in January, 1856, and has only menstruated three times up to this date (June, 1870), and is now the mother of nine children, seven of whom are alive.

Dr. Young remarked that in both cases the patient had menstruated regularly previous to their marriage.

Mr. Pridie said he had attended a girl in her first confinement, who was 15 years of age and had never menstruated; and he knew of a lady who had been married for twelve years, had seven children, and had only been seven or eight times unwell.—*Ed. Med. Journ.*, July, 1870.

70. *Atresia Vaginæ, and Retention of Menses for Ten Years, with Enlargement of Uterus from the Blood accumulated within its Cavity, causing it to reach a Hand's Breadth above the Umbilicus; commencing Rupture of one of the Fallopian Tubes; Puncture of Uterus by an Exploring Trocar; Favourable Termination.* Dr. P. HALBERTSMAN, in the *Nederl. Tijdschr. voor Geneesk.*, 1869, describes this curious and instructive case. The beneficial effect resulting from the small opening made into the blood-distended uterus by the exploring trocar, even when there exists enlargement by blood of the Fallopian tubes, Dr. H. explains by remarking that a rapid withdrawal of the blood from the uterine cavity, the Fallopian tubes, if adherent, would run the risk of rupture, or if not adherent, they would contract simultaneously with the uterus, and their contents be forced through their fimbriated extremities into the peritoneal cavity. These results are obviated by a small opening into the uterus, thus permitting the contained blood to escape *guttatim.* The rupture of the Fallopian tubes will thus be prevented, or if already commenced, its further extension prevented, while their contents will be more certainly discharged through the uterus.—*Centralblatt. f. d. Medicin. Wissenschaften.*, March 12, 1870. D. F. C.

71. *On Some of the Dangers attending the Use of Tangle Tents.*—Dr. L. AITKEN states (*Edinburgh Medical Journal*, Aug. 1870) that he has occasionally seen pelvic peritonitis and cellulitis and endometritis result from the use of the sea-tangle tents, and he gives the following precautions, attention to which will, he thinks, prevent these accidents. Since he has employed them, he says, he has never had any worse result from the use of tents than the production of slight and transitory forms of cervical catarrh. These precautions are :—

1. The non-employment of the tent, so long as we are convinced that there exists any endometritis, or any recent perimetric inflammation, of whatever nature it may be.[1]

2. Tents ought only to be used in the intervals between, never (except under

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[1] To this head we ought to add that it is never very safe to use tents where there has existed any previous perimetric inflammation which has left bad effects behind, either adhesions, for instance, or chronic inflammatory products.

the most urgent circumstances) either during, immediately before, or immediately after a menstrual period.

3. The greatest care must be taken in the introduction and removal of tents to avoid any violence or force. Any bleeding caused at either time ought not to be interfered with unless it become serious.

4. The tent should only be used when the patient can remain recumbent from the moment of its introduction to a period after its removal, which varies with each patient. This period ought never to be less than twelve hours, and should usually be much longer.

5. If the patient complains of pain from the action of the tent, an opiate of some kind—a suppository of morphia often suits—a dose of chloral, or warm water injections, ought to be employed to diminish or relieve it, and thus prevent that restlessness which the pain will inevitably cause, and which is the surest means of producing inflammatory action in the womb or adjoining serous membrane and cellular tissue.

6. If successive tents require to be employed, it is much safer to allow an interval of twelve hours to elapse between each. A greater interval even would be preferable; but the cervix often closes up rapidly after its dilatation, and if we were to wait much longer we should frequently have to begin *de novo.*

7. The tangle tent is fully expanded, and ought to be withdrawn, in eight to ten hours after its introduction.

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72. *Introduction and Removal of Uterine Tents.*—Dr. L. Aitken gives (*Edinburgh Medical Journal,* Aug. 1870) the following useful instructions on this subject:—

"Whether the tent we intend to use be of sponge or sea-tangle, it is decidedly preferable to commence by expanding the vagina to some extent by a speculum, and for this purpose no better instrument can be found than that of Dr. Marion Sims. In the introduction of the sea-tangle it is by no means so absolutely necessary to use the speculum as in the case of the sponge tents, as the latter, however well prepared, so rapidly imbibe the fluids of the vagina, if allowed to come in contact with them, that they become soft and flexible, and consequently useless, before they can be introduced into the os uteri, and the employment of the ordinary form of Sims' speculum necessarily entails the presence of a third person, which is occasionally very strongly objected to. The use of any of the varieties of bivalve specula prevents us, of course, from grasping and drawing forward the anterior lip of the os with the tenaculum, and thus frustrates one of the principal purposes for which the speculum is required at all. For the introduction of the tents, too, we require to be provided with different instruments. For the sponge and hollow tangle tents I generally employ the form of bent stilette, long ago recommended by Sir James Simpson; while the solid laminaria tent is more firmly grasped and more easily manipulated by a long-handled and roughly-serrated modification of the polypus forceps.

"Having thus settled the preliminaries, it is by no means difficult, in the great majority of cases, to slip the tent into the os and cervix, but occasionally it happens that you meet with some obstacle to this easy entrance. The most common impediment usually arises from the catching of the point of the tent in one of the folds of the cervical mucous membrane. But this only requires to be mentioned to suggest its own remedy. Much more difficulty, however, is experienced in overcoming the real stricture which often exists at the os internum. It ought never to be forgotten that the internal or cervico-uterine orifice[1] is the narrowest point of the canal, and that it is here that the point of the sound is most commonly arrested. In selecting the size of tent to be first used, we ought consequently to be guided by the information which a previous use of the probe has given us of the state of this orifice. In some few cases it will be found impossible to pass a tent, and then the only rational treatment is to dilate the stricture by the pressure of metallic bougies[1] of gradually-increased diameter. * * * * *

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[1] Of course I am speaking of the normal uterus. I believe that the os externum is the most common seat of congenital or acquired stricture, but a stricture there would probably require division before the tent could be employed at all.

"Of all the impediments to the entrance of the tent, however, the most annoying, and probably the most common, is the result of a flexion of the body of the womb on its cervix. The internal orifice, at or near which the flexion almost invariably occurs, is thus most effectually strictured, and the position of the womb is such that it is next to impossible to introduce a straight tent. I ought here to remark, that if the flexion has been produced by adhesions of the uterus to the surrounding parts from bygone inflammatory action, a tent ought never to be used. At least, I know of scarcely any circumstances which would justify the dilatation of the cervix and body of the womb under the imminent risk of a renewal of the peritonitis. To get over the difficulty, I at first thought of employing tents bent to some extent in the same direction as the axis of the flexed uterus, but this was proved by trial to be much better in theory than practice, as at the angle of flexion of the uterus the tent invariably became deeply indented, and thus merely enlarged the cervical and uterine cavities, leaving a strictured part between. I now find that the only real escape from this difficulty is to employ a probe to replace the uterus as nearly as possible in its normal direction, and then to slip in the tent by the side of the metallic director.

"In extracting the tent, the only common source of difficulty arises from its occasional unequal dilatation. It sometimes happens that the existence of a stricture of the cervix, whether it be at the internal os or any other part, may produce such an indentation of the tent as to give it an hour-glass form. When this rather awkward result ensues, we ought never to use any great force in our efforts at removing the tent. Grasping the lower end firmly with a three-toothed vulsellum or large artery forceps, and gently moving our hand backwards and forwards with a to-and-fro motion, we can usually succeed without any great traction in bringing out the tent. A much more formidable complication I have already mentioned as occasionally following the use of a tent which has been pushed too far within the uterus, and over which the os externum has closed. Such a result, however, can only be the sequence either of great carelessness in the use of the tent, or of the employment of too short a one; and, to avoid it, we ought never to introduce a tent under two inches in length. In extracting the tent, Sims recommended us invariably to dilate the vagina by the speculum; but this I seldom, if ever, do, and I never even use any instrument for the extraction, unless the string which is attached to the tent gives way—a frequent occurrence, however, owing to its often becoming softened by its prolonged soaking in the vaginal discharges. The entrance of air into the dilated cervical and uterine cavities is a danger I certainly never met with, and can scarcely even conceive possible; or even if it did occur, it does not seem likely that it would produce any very injurious result."

73. *Abnormal Dilatation of the Uterine Cervical Canal.*—Dr. MULLER relates the history of two cases which occurred, the one in a female thirty-four years old, and the other in a female forty-five years old. Both repeatedly parturient. The patients had for some time been suffering from symptoms of uterine disease, the result, in one, of chronic metritis, in the other of retroflexion of the womb. On an examination into the cause of a profuse menstruation present in both cases, Dr. M. found the os uteri open and readily entered, and the cervical canal dilated to the size of a guilder, its inner surface rough, uneven, and flabby. The inner mouth was closed. It was very certain that this condition of things was not the result of a recent abortion, and equally so that neither polypus nor other tumor was present. This was further shown by the persistence of the condition described in the first case for many weeks, and in the second for many days. In both cases a cure was effected by the use of the liquor ferri sesquichloridi and other astringents, and the fear of the occurrence of carcinoma uteri,

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[1] Previous incision of the internal orifice could not be recommended if the tent required to be used immediately afterwards. This is by far too dangerous a proceeding to be practised merely for the diagnostic purposes I am here speaking of.

which was, at first, entertained, entirely removed. Dr. M. refers all the symptoms in the cases described to a peculiar diseased condition of the mucous membrane of the uterus.—*Centralblatt. f. d. Medicin. Wissenschaften.*, June, 1870, from *Scanzoni's Beitr. zur Geburtskunde u. Gynäkologie* vi.

D. F. C.

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74. *Retroversion of Uterus cured by Local Depletion.*—Dr. Meadows records a case of a woman, æt. 41, who had had three children and three miscarriages, and presented the usual symptoms of chronic metritis, *plus* the local phenomena due to uterine displacement; with general treatment, and the employment of a pessary for a time, recovery took place. After three years, the patient suffered from a relapse. Four leeches were ordered to be applied to the posterior part of the uterus, to be repeated three times at intervals of three days; after the second application of the leeches, not only were the tenderness and engorgement much relieved, but the uterus was in a much more normal position; after the third application menstruation appeared, and a week subsequently the uterus had resumed its normal position. Dr. M. considers this case particularly valuable "because only one remedy was employed throughout the treatment; and I am therefore, I think, fairly entitled to consider that the issue of the case, which was unmistakably successful, was due directly to the effects produced by that one remedy. And, further, if this be so, it follows, I think, as a logical conclusion, that the pathology of the affection must be intimately related to the known effects producible by the action of the remedy in question. In other words, that, if relief follows depletion without any other treatment, engorgement must be the main if not the only cause of the symptoms complained of. Hence we see how the particular affection is developed, and how its cure may best be brought about." "It might be asked, perhaps," he adds, "why not have replaced the uterus at once, applied a pessary, and thus have cured the case? My answer is, that I have again and again seen this treatment adopted, and with marked aggravation of the suffering."—*Lancet*, Aug. 6, 1870.

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75. *Perforation of the Uterus by a Uterine Sound.*—Dr. HOENING relates (*Berl. Clin. Wochenschr.* 1870) the case of a woman, twenty-eight years of age, who thrice, after short intervals, was delivered of twin children, at the full term, and twice aborted. On examination by means of the sound, of the cavity of the uterus, the instrument entered to the extent of 10½ cm.; the handle resting at the entrance to the vulva while the opposite, knobbed extremity could be felt nearly on a level with the umbilicus. To the touch externally, the uterus appeared to be very soft and perfectly movable, but not at all enlarged. It was evident the sound had not passed into either of the Fallopian tubes, inasmuch as its extremity was pointed directly to the centre of the fundus uteri; besides, it is scarcely possible, under any circumstances, that the uterine entrance of the tubes, much less the tubes themselves, could be so far enlarged as to admit the entrance of the sound. Besides, the tubes at their fimbriated extremity are directed backwards, and so bound down by the lateral ligaments that it would be impossible to raise either of them up by the introduction of the sound so as to enable the point of the latter to be felt in the vicinity of the umbilicus. Dr. H. concludes, therefore, that in the instance he refers to the sound had actually perforated the wall of the uterus, a thing that could readily occur when this had become atrophied and softened during the puerperal period. There may even, he remarks, have existed an opening through the wall of the uterus at its fundus, caused by the formation and rupture of an abscess in child bed. That this, however, was not the case in the instance related may be inferred from the entire absence of any of the products of inflammation. Dr. H. believes that the first of the cases reported by Hildebrandt may be set down as one in which perforation of the uterine walls was caused by the use of the sound.—*Centralblatt. f. d. Medicin. Wissenschaften.*, May, 1870. D. F. C.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

76. *Chloral as an Antidote to Strychnia.*—Dr. J. H. BENNETT and his assistant in the physiological laboratory, Dr. MCKENDRICK, showed an interesting experiment illustrating the power of chloral in neutralizing the poisonous effects of strychnia. After briefly detailing the few observations already published on this subject by Groves, Richardson, Verneuil, and Liebreich, Dr. Bennett stated that, so long ago as May 19th, Dr. McKendrick and he had shown that chloral had the power of neutralizing the effect of an otherwise poisonous dose of strychnia; and that since that date the experiment had been frequently repeated by them on rats, rabbits, etc. Richardson had tried it, but unsuccessfully; while Liebreich had tried the opposite experiment, and found that strychnia was an antidote to chloral. Two rabbits were then taken, each weighing about three pounds and a half, and equal in strength. One hundredth of a grain of strychnia, which had been proved to be a poisonous dose to the rabbit, was then injected under the skin of both rabbits; but to the second rabbit was also given an injection under the skin of fifteen grains of chloral in solution. In ten minutes the first rabbit began to have convulsive twitchings of the legs; in thirteen minutes it became frisky and ran about the table; in sixteen it took two or three severe tetanic spasms; in eighteen it died. The second rabbit was lethargic in ten minutes—sound asleep in a few more. In sixty minutes it woke up with a spasm or two; and by the end of the meeting—135 minutes—it seemed sleepy, but otherwise quite well.—*British Medical Journal,* August 6, 1870.

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77. *Experiments upon Monkeys with Strychnia.*—The Nos. of the *Indian Medical Gazette* for December, 1869, and May, 1870, contain some very interesting results of experiments, by THEOBALD RINGER, on monkeys with strychnia.

The "lungoor" (*Presbytis entellus*) seems to be proof against strychnia; five grains to an animal of that species not only had no effect but was eaten apparently with relish.

When, however, an attempt was made to induce another species of monkey, the "pouch-cheek" (*Inuus rhesus*), it could not be induced to eat it, and, when forced to swallow some, death resulted.

It is curious further that the "lungoor," which proved proof against strychnia, succumbed to a few grains of cyanide of potassium, which had, however, to be administered by force, as the animal could not be induced to take it, though disguised in every possible way. This confirms the statement that a monkey will never eat anything that is poisonous to it.

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78. *Blood-Pictures.*—Dr. DAY, of Geelong, Australia, the improver of the guaiacum-tests for blood and other animal fluids, confirms the discovery of Neumann, that the picture or network formed by the human blood can be distinguished under the microscope from that which is formed by the blood of other animals. He says he has repeated the experiment, which is "wonderfully simple," almost every day for the last two months, with invariable success. A small drop, not a mere speck, of the blood is to be placed on a microscope slide, and carefully watched, at a temperature of 10° or 12° Reaumur (=54.2° to 59° Fahr.), until the picture or network formed by its coagulation is developed. Human blood speedily breaks up into a "small pattern" network: the blood of other animals (calves, pigs, etc.) takes a longer time, and makes a larger pattern; but the blood of every animal seems to form a characteristic "picture." Dr. Day has examined the blood of calves, pigs, sheep, rabbits, ducks, hens, several kinds of fishes, etc., as well as that of man, and has found the results to be trustworthy and constant.—*Brit. Med. Journ.*, Aug. 6, 1870.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

On the Application of Carbolic Acid as a Local Anæsthetic in Surgical Operations. By J. H. Bill, M. D., Surgeon U. S. Army.—In conducting some investigations on the action, etc., of carbolic acid, the writer has made the following observation, which, as they seem to be of practical importance, he communicates in advance of the other results :—

All who have handled this substance must have noticed the tingling sensation (not unlike that produced by aconite) in the finger tips and other parts touched by the acid, which presently passes into a greater or less anæsthesia. On trying to determine the amount of this anæsthesia with an ordinary æsthesiometer it was found not only impossible to distinguish two points, however widely separated, but even to recognize the presence of one.

The prick of the point was not felt at all as pain, nor was an incision productive of uneasiness. The experiment was, therefore, extended thus: The radial side of the writer's left forearm was covered with a cloth soaked in a saturated solution for a half hour, then a streak was traced over the course of the radial artery with a camel's hair brush dipped in acid liquefied by one-twentieth bulk of water. This streak extended from the styloid process to near the elbow, and after a few minutes was rubbed off. An incision was then made with a common scalpel from a point about two inches above the styloid process towards the internal condyle for five inches, occupying as near as possible the middle of the streak made with the brush, and extending down to the fasciæ investing the flexor muscles (superficial) of the thumb and fingers, so that at its lower extremity the radial artery was exposed and could have been ligated. This incision was unattended with pain, save where nerves distributed to or passing over the muscular fasciæ were pricked or divided, and even in this case the pain was not at all unbearable. *The incision of the integument was painless*, and the writer would have been unconscious of the injury save from the sensation communicated to his hand holding the knife as it was drawn through the tissues. This observation or experiment was made nearly a year ago. It was applied practically at once to all minor cutting operations. The writer has not incised a felon or bubo since without successfully employing this method for preventing or greatly mitigating pain. Many cases could be given, one will suffice. David Harris, of Vancouver, applied with his second finger of the left hand highly inflamed from a felon, the parts much injured by burrowing of pus. A previous felon had been treated on another finger a few months before, and the requisite incision had given him exquisite pain ; the patient therefore apprehended great suffering from any operation on the finger now diseased, and begged for chloroform. However, the finger was soaked for fifteen minutes in warm water containing three per cent. of carbolic acid, dried, and then a brush, dipped in the concentrated acid, drawn over the finger in the course of the intended incisions. These, two in number, were then made, using a thin edged scalpel by a slow sawing motion, allowing only the weight of the knife to make the cut. The patient stated that he had suffered no pain, or not more than would have resulted from handling the parts. The parts healed at once. Sometimes it is necessary after making an incision nearly through the integument, if sensibility becomes apparent, to brush out the wound made with some liquefied acid before extending the incision deeper. This was necessary in a palmar abscess treated by this method without pain. The writer has excised a small tumour partly by this plan. Buboes have been operated on painlessly, and in short, the writer can recommend the plan in any cutting operation where no dissection of the skin is involved, and where all the pain results from the cutting of the skin. It is hoped that it will be of special service to those who are compelled to operate without an assistant. The writer was thus compelled this summer to remove from his right hand, by an incision of over two inches in length, a large wooden splinter which had been thrust through the palmar fascia, and had lodged under the tendon of the lumbricalis of the index finger. It was done without pain, save where a nerve was divided. The incision healed without scar.

These facts, which the writer believes he is the first to point out, have theoretical relations of great interest which may be discussed in a future paper.

FORT VANCOUVER, W. T.

[It is proper to state that the above article is a portion of a very elaborate paper on Carbol, received several months since for publication in the No. of this Journal for July last, and which was returned, for revision, at the author's request. The great remoteness of the post at which he is stationed has so retarded communication that we did not receive back the part now published until too late for insertion in its appropriate place.—ED.]

Hydrate of Chloral as an Anæsthetic in Labour. By W. J. C. DU HAMEL, M. D., of Baltimore.

At 4 o'clock P. M., early in this month, I was called to see a lady in labour with her second child. The previous labour, three years ago, had been a tedious one, and the physician in attendance had finally to deliver her with the forceps. I found her in active labour, the os uteri dilating; and a few hours afterwards the os had become well dilated and the head presented; pains active. A few hours later very little progress had been made though the pains were still vigorous, and she now insisted on the instruments being used, saying she *could not be delivered* otherwise. I declined to do so, but gave her twelve grain doses of hydrate of chloral every hour for *three hours*. It proved to be a most excellent anæsthetic in this case, and free from the dangerous effects of chloroform. After the *second dose* there was considerable *relaxation* of the parts, and in four hours after the first dose she was delivered of a fine child without the use of instruments, and with *very little pain*. I regard the chloral as a valuable agent in severe and tedious labours.

BALTIMORE, MD., Sept. 8, 1870.

[These observations are confirmatory, to some extent, of those of Mr. Lambert, see p. 565.]

Rupture of the Stomach and Spleen from a Fall, without External Evidences of Injury. By I. Somers Buist, M. D., Physician and Surgeon in charge of City Hospital, Charleston, S. C. (Read before the Medical Society of South Carolina.)

I was called on the morning of the 29th of March, 1870, by the request of the coroner, to view the body of A. H., and perform the *post-mortem*, as the cause of his death could not be determined, and a jury of inquest had been summoned. The following history was obtained: The deceased had been walking on the trestle of the railroad and slipped, falling about twenty feet, his fall being broken, by a piece of timber, about ten feet before reaching the ground, his left shoulder impinging upon the same. He suffered considerable pain at the time, and, from the best accounts, *fainted away*, but soon rallied sufficiently to be removed, and, upon the passing of the up train, was brought to the city. Feeling very weak, he was taken to his home in a wagon, and, upon arriving, was able to sit up and speak connectedly and rationally. Complained of nothing more than soreness in the limbs and a fulness about the stomach. He was soon placed to bed, and the usual means adopted to relieve pain. About 1 A. M. he was found dead in bed, having vomited a small amount of blood, as was seen upon examining the bedclothes.

A close inspection of the body could detect *no indication of external injury—no bruises, contusion, or any effect of violence.* The abdomen was considerably distended, and, in fact, was the only abnormality that could possibly direct attention to any particular region of the body as the seat of an injury. Upon opening the same, about two quarts of liquid blood were discharged; no clots or shreds discovered. The whole surface of the peritoneum was in a state of active congestion, red, and inflamed; and so of the peritoneal covering of the intestines. Upon drawing these aside and bringing the stomach into view, the following was found to be its condition: Empty and flat, the upper mucous walls lying in contact with each other; the cardiac extremity and body pale and flabby, its pyloric end congested and floating in a large semi-fluid clot. Upon examining this extremity, a rupture about five inches in length was discovered upon the under surface, extending into the duodenum. A large clot of solid fibrin filled the rupture. No other evidence of injury could be found in this organ.

The spleen had a rupture about two inches in length and one-half inch in depth. All other organs were intact and natural.

At the time of the receipt of the injury the subject had not eaten for several hours, and nothing like undigested food could be found in or about the abdominal cavity. From the large masses of blood in the abdomen, and the length of time that life lasted after receipt of the injury (about fourteen hours), the return to consciousness, and partial restoration of strength, we may infer that during the so-called fainting the clot had formed, thus arresting hemorrhage for the time; but that finally, the clot becoming dislodged, death resulted from internal bleeding.

[A case equally as remarkable as the above, in which the intestines and abdominal viscera were cut through by the passage of a railway train over the body, with scarce any injury to the abdominal walls, is recorded in the *British Med. Journ.*, Aug. 20, 1870. See No. of *Med. News and Library* for Oct. 1870.—Ed.]

Complete Division of the Trachea and Wounding of the Œsophagus in attempted Suicide; Recovery. By WILLIAM R. VAN HOOK, M.D., of Illinois.

On the 27th of March, 1870, I was called to see J R., a robust Irish railway hand, æt. 50, who, in a temporary fit of despondency, had attempted suicide by cutting his throat with a razor. When I saw him, a few minutes afterwards, he was lying on the bed where he had slept the preceding night, with his breast covered with blood, a large gaping wound in the neck, and breathing with great difficulty. On inspection, I found the trachea completely severed, having been cut through between the cricoid and thyroid cartilages, and a free opening made into the œsophagus. The upper portion of the windpipe was retracted greatly, while the inferior portion protruded, showing its entire circumference each time the man coughed, which was nearly constant, from the blood pouring into the lungs. The patient made signs for water, a glass of which was given him; he drank it convulsively, but the water poured out at the wound in the neck as rapidly as he drank it, causing, of course, great strangulation and coughing. The paroxysm of coughing having somewhat subsided, the upper portion of the trachea was drawn down with a tenaculum, and the organ sewed together with silver-wire stitches, leaving a free opening anteriorly. There being no depression of the pulse, and no need of stimulants, J. R. was now left, with his head slightly inclined to his chest, for three hours, in order to give time for the bleeding to cease; to facilitate which, the doors were left open and a free circulation of air permitted. The integuments were then brought together with the wire, an opening being left directly opposite the one in the windpipe, to give free outlet to the discharges. His chin was now approximated to his breast, being held there by a muslin cap fitted to the head with straps fastened to a broad bandage around the chest. The œsophagus was not disturbed, believing (as the result proved) that the position in which his chin was confined would bring the edges of the wound in that organ into apposition. Cold water dressings were ordered to the wound, and morphia placed upon his tongue, to allay cough. Small lumps of ice were given him to hold in his mouth, to relieve an intolerable thirst, which, when melted, he removed with a cloth. The temperature of the room was now raised to eighty degrees, and ordered to be kept at that heat, which was done for several days.

He did well until evening, when I found him covered with a cold, clammy sweat, with a rapid pulse, and a deathlike pallor of his skin. An injection of whiskey was ordered, and stimulating cataplasms applied to the extremities, after which the paroxysm gradually wore off.

March 28. Passed, as his wife said, a very good night, with only occasional coughing spells; his bowels moving of their own accord. His breathing this morning was not hurried, and pulse normal. A raw egg was beaten up and a spoonful given him, a trace of it showing at the wound; it not causing much cough, the remainder of it was given him, and another egg ordered at night.

29*th*. Complained so much of hunger, that I passed a small tube into his stomach and injected with the stomach-pump six or eight ounces of soup. The tube caused so much irritation of the windpipe, that I did not dare use it again.

He did well up to April 2, when, in a paroxysm of coughing, he tore the stitches in the outer wound all out, but fortunately did not disturb the sutures in the windpipe. The external wound was sewed up as at first.

On the twelfth day the sutures came away from the windpipe, the egg by this time having ceased to appear at the wound (he having been fed morning and night on a raw egg), and the opening in the windpipe being nearly healed, which did close up the next day.

From this time on the wound continued to heal, warm water dressings covered with oil-silk having been used after the fourth day.

May 14. Is walking about, the wound entirely healed. He has a stricture of the œsophagus which does not permit him to use solid food, which will require appropriate treatment.

It is surprising that he did not cut the large bloodvessels in his neck adjacent to the trachea, and is only to be accounted for by the fact of his having taken hold of the trachea, and drawn it well forward as he cut it through.

DOMESTIC SUMMARY.

Glycogenic Function of the Liver.—Our readers have been made familiar with the remarkable experiments of Claude-Bernard (see number for July, 1857, p. 203), demonstrating the glycogenic function of the liver; and also with those of Dr. Pavy (see number for April, 1859, p. 521), which led him to deny that the liver during life contains sugar, and that its presence is due to a post-mortem change; and, finally, with the experiments of Dr. A. Flint, Jr. (see number for April, 1869, p. 569), undertaken to reconcile these discordant results, and from which he came to the conclusion, that during life the liver contains only glycogenic matter, and no sugar, because the great mass of blood which constantly passes through that organ washes out the sugar as fast as it is formed; but after death, or when the circulation is interfered with, the transformation of glycogenic matter into sugar goes on; the sugar is not removed under these conditions, and can then be detected in the liver.

Dr. W. T. Lusk, Professor of Physiology in the Long Island Medical College, has recently repeated the experiments of Bernard using special precautions and displaying great ingenuity in his investigations, and his results seem to fully confirm the accuracy of Bernard's conclusions. In a valuable paper (*New York Med. Journ.*, July, 1870), he has given an account of his investigations which authorizes him, he thinks, and we believe justly so, to adopt the following conclusions:—

1. That the blood of the general system in carnivorous animals confined to a nitrogenous diet contains appreciable quantities of glucose, not only during the period of digestion, as admitted by Bernard, but even in cases where animals have been deprived of food for a considerable period of time.

2. That the blood of the right side of the heart contains from a quarter to half a grain of glucose per fluidounce, under strictly physiological conditions.

3. That the quantity of glucose in the right side of the heart is from two to four times greater than that found under corresponding circumstances in the jugular vein.

4. That this excess argues a by-no-means insignificant amount of sugar in the pure hepatic blood, before it has become largely diluted with the comparatively non-saccharine fluids of the venæ cavæ.

5. That we are forced to admit the fact of sugar-formation by the liver, though we fail to detect the presence of sugar in the liver-tissue when, after death, the fermentation of the glycogenic matter is prevented."

It is a question of the utmost practical importance, as involving the origin of diabetes, to determine whether or not, in view of all the facts, we are justified in assuming that the liver is the sole source of the sugar found in the economy, and Professor Lusk thinks we are not. He says: "The causes of diabetes are various, and the source of the sugar probably not confined to a single organ.

At the same time the liver is to be regarded as the most active agent in sugar-production. At times it may be the indirect cause of diabetes, by its failure to fulfil its function, of arresting the passage of saccharine principles through it. We are to regard the labors of Bernard, Pavy, and Bouchardat, as severally adding to the sum of our knowledge of diabetes. There is no reason to suppose that the truth lies in any one exclusive theory. The problem is unquestionably a complicated one; and we must be content to get our knowledge piecemeal, until the time shall come when we shall fairly hold in our hands the key to the mystery of nutrition."

—

Treatment of Croup.—Dr. FORDYCE BARKER gives (*American Journal of Obstetrics*, May, 1870) the following as his treatment of croup:—

"1st. I always commence the treatment by an emetic of turpeth mineral (hydrargyri sulphas flava), in doses of from three to five grains, according to the age of the child. If it does not act in fifteen minutes, I direct a second powder to be given. This, however, is rarely necessary, and I have never known a second dose to fail to act in a few minutes, except in one instance, which I will mention hereafter. My reasons for preferring this to all other emetics in croup are the following: It acts much more promptly and efficiently than ipecac or alum; it is tasteless and much more easily administered than either: it does not exhaust and depress the vital power like antimony. It is equally prompt in its action with the sulphate of copper, while it is much more effective as a revulsive and sedative. I think the active emesis from the turpeth mineral accomplishes the following results much more speedily and effectually than any other agent. It depletes the mucous membrane by an abundant secretion of mucus which is thrown up; it removes from the larynx, by the forced expiration which it causes, any albuminous or fibrinous exudation which may be there in a diffluent state, and which, by remaining, may become subsequently pseudo-membrane; it acts as a powerful revulsive, and thus diminishes the capillary circulation in the trachea and larynx; and thus it becomes a most effective agent in arresting the inflammatory process."

Dr. B. regards it as very important that this emetic should be given immediately on the appearance of the symptoms which threaten croup. * * *

"If I find evidence of catarrhal laryngitis simply, then I rely mainly on opiates, which I regard as almost the specific for acute catarrh of the respiratory apparatus, whether it occurs in infantile or in adult life. I direct full doses, proportionate to the age of the child, of Tully's powder, or the Dover's powder, or the 'Brown Mixture' of the U. S. Dispensatory. But I watch such a child closely, visiting it a second time before evening. But if, on my morning visit, I find the child with a quick pulse, hot skin, somewhat hurried breathing, and an occasional ringing cough, but with no thoracic râles, I direct that he shall be kept quiet in bed, comfortably covered, but not with too many clothes, and I prescribe the veratrum viride, in one or two drop doses, according to the age of the child, as for example in the following formula: ℞.—Syr. simp. ℥j; aq. puræ, ℥vj; spts. ether. nitros. ʒij; tinct. verat. viride, gtt. 16–30.—M. S.—A teaspoonful every 2d hour.

"I visit the child at least as often as every 8th hour, and increase or diminish the dose, according to the effect of the medicine on the pulse. I never am satisfied until I find the pulse below 80 per minute, and I then continue the veratrum in half the dose that I found necessary to bring it down to that point. My experience in the use of the veratrum viride now dates back more than twenty-five years, and I have never found it fail to reduce the pulse of irritation or inflammation (it will not reduce the rapid pulse of exhaustion), and I have never found the slightest danger or uncertainty in its use, as I watch its effects closely. If thoracic râles, hurried and laboured respiration, and other symptoms indicate that the disease is extending downwards, I then substitute for the above prescription something like the following formula, of course varied according to the special indications of the case: ℞.—Mist. acaciæ, syr. tolu, āā ℥j; ammoniæ carb. ʒss; tinct. verat. viride, gtt. 16–30.—M. S.—A teaspoonful every 2d hour.

"It has sometimes occurred that I have found evidence of increasing laryngeal and tracheal obstruction, and I have in consequence repeated the emetic of the turpeth mineral on the second or third day; but I have never had occasion or deemed it well to repeat it a third time. Several times, a few hours after the emetic, but never during its immediate action, the child has thrown off more or less detached portions of membrane. In two instances I have had perfect casts of the trachea, with its bifurcation and some of the primary branches of the bronchi thrown off."

Dr. B. acknowledges his indebtedness to Dr. Jacobi for acquainting him with the great value of quinia in large doses in some of the diseases of the respiratory organs of children, and says:—

"I have found it of great service in some cases of croup in the advanced stages, when the respiration is hurried and irregular, the paroxysms of cough less marked, the intermissions less distinct, and the cough husky instead of ringing. I have substituted for the last formula the following: ℞.—Mist. acaciæ, syr. senegæ, āā ℥j; quiniæ sulph., ammoniæ carb., āā ʒss.—M. S.—To be well shaken. A teaspoonful every 4th hour.

"When the croup is complicated with lobular pneumonia I usually give the quinia separately, four or five grains three times a day, while the little patient takes the last of the prescriptions containing veratrum viride."

Dr. B. claims to have had extraordinary success in his treatment of croup by this method.

Sulphites in Phlegmonous Angina.—G. G. Tyrrell, L. R. C. S. I., expresses (*Pacific Med. and Surgical Journ.*, August, 1870) the conviction that he has "discovered in the sulphites a certain prophylactic against, and a frequently successful agent in the cure of, certain diseases affecting the throat, more especially in that common and most troublesome complaint known as phlegmonous angina, acute tonsillitis, or quinsy."

Believing that tonsillitis is but the local effect of a general poison, he determined to give the sulphites a trial and push their administration so as to get their constitutional effect, if possible, before the zymotic poison had full possession of the system. He first tried the article in his own case. He says, "In April, 1868, I was seized with the usual symptoms of impending disease—lassitude, chilliness alternating with flushes of heat, coated tongue, pain in limbs, etc. Soon the dryness and constriction of the throat were perceived, with pain on deglutition, and that horrible feeling of a foreign body in the pharynx, which in vain you try to dislodge. I now knew that my old friend, acute tonsillitis, was about to develop itself, as I was a victim to such attacks, and had almost made up my mind to put in my regular two weeks of sickness like a philosopher. Upon examining my throat, I noticed both tonsils swollen, their mucous crypts filled with exudation, the velum palati congested, the back of the pharynx a vivid red colour, and dry. I dreaded the suffering appertaining to a tonsillitic abscess, and finally came to the conclusion that with my ideas upon the zymotic origin of the disease, mine was just the case to ascertain whether there was any virtue in the sulphites or not. Accordingly I ordered a mixture containing thirty grains of bisulphite of soda to each dose of a tablespoonful, which was to be taken regularly every hour. I commenced at 12 noon; at 8 P. M. I felt decidedly better, and could swallow with but little inconvenience; the tonsillitic exudation had disappeared, and the vivid redness of the velum and pharynx was subsiding. I continued the medicine regularly throughout the night, and at 8 next morning almost all traces of the disease had vanished. This result was so striking, and so exceedingly gratifying to me that I determined to pursue my investigations further."

Several other cases are related in which the remedy seemed to be equally beneficial.

Traumatic Tetanus successfully treated by Calabar Bean and Hydrate of Chloral.—Dr. Thomas G. Duncan records (*Am. Practitioner*, Aug. 1870) a case of this, and expresses the conviction that both articles contributed to the result, the Calabar bean by its power of producing muscular relaxation, and the hydrate of chloral by causing quietude and alleviating convulsions.

In the September number of the same journal Dr. PRESTON PETER records a case in which the same articles failed to arrest a fatal termination; and another is reported by Dr. EDWARD RICHARDSON in which Calabar bean was administered with like want of success.

Sebaceous Cysts of the Eyelids.—Dr. J. J. CHISOLM recommends (*Baltimore Medical Journal*, May, 1870) the following as a simple and efficacious method for removing cystic tumours from the eyelids: "A Desmarres ring forceps is used as a clamp upon the lid, to shield the ball of the eye from injury, to fix the tumour, and prevent annoying oozing of blood. Under this ring-pressure a small opening is made into the cyst, through which its contents are squeezed out. The end of a small silver probe, dipped in nitric acid, is then passed into the cavity, is made to pass over the epithelial lining surface, and is withdrawn. Usually, in its passage into the cavity of the tumour, it cauterizes sufficiently the lips of the incision to prevent any oozing of blood when the clamp forceps is removed."

[That this is a most simple and efficacious mode of removing such tumours we can certify from long experience; but we have been in the habit for many years of introducing into the cyst through the puncture a very small cylinder of sulphate of copper with a conical end (see *Lawrence on Diseases of the Eye*, edited by Hays, Philadelphia, 1854, note, p. 176) instead of the probe dipped in nitric acid. We have also used a probe the extreme end of which was armed with nitrate of silver by dipping it in that article in a melted state. We may here remark that we have had our Desmarres ring forceps made to close with a wedge-shaped slide instead of the screw, which is a convenience, as it can be held and fastened with one hand, and we think it an improvement.—ED.]

On the Simultaneous Occurrence of a Soluble Lead Salt and free Sulphuric Acid in Sherry Wine; with Observations on the Solvent Action of Alcoholic Saline Solutions upon Sulphate of Lead.—The *Proceedings of the American Academy of Arts and Sciences* (October 13, 1868) contains an interesting paper on this subject, by Prof. F. H. STORER. The author was called on by a wine-merchant "to examine a sample of pale sherry taken from a cask which had been returned to him, on the certificate of a chemist that the wine contained lead. The sample in question was perfectly transparent and clear. There was nothing in the appearance or taste of the wine to indicate the sophistication to which it had really been subjected.

"On submitting this sherry to chemical analysis, I found not only that it held in solution a considerable proportion of lead, but also a decided trace of free sulphuric acid, besides an abundance of the same acid combined with some akaline base. When a portion of the wine was evaporated in contact with slips of paper, the latter soon became crumbly and friable.

"Regarded merely from the chemical point of view, without reference to its manifest bearing upon questions of hygiene and jurisprudence, the simultaneous occurrence of a lead salt and of free sulphuric acid in alcoholic solution, is a fact sufficiently important to merit close attention."

Prof. S. was led to institute a series of experiments, to determine the manner in which the lead was held in solution in wine, even in the presence of free sulphuric acid.

"These experiments," he states, "show clearly that very considerable quantities of sulphate of lead can be held in solution by weak alcohol charged with various salts. It may, therefore, reasonably be inferred that wines sometimes retain lead in solution, in consequence of this action of the acids and salts peculiar to wine upon lead compounds ignorantly employed to correct acidity."

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UNIVERSITY OF PENNSYLVANIA.

MEDICAL DEPARTMENT.

Ninth Street, above Chestnut, Philadelphia.

The Lectures of the Session of 1870–71 will commence on the second Monday (10th) of October, and close on the last day of February ensuing.

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Samuel Jackson, M. D.,	Emeritus Professor of Institutes of Medicine.
Hugh L. Hodge, M. D.,	Emeritus Professor of Obstetrics and the Diseases of Women and Children.
Joseph Carson, M. D.,	Professor of Materia Medica and Pharmacy.
Robert E. Rogers, M. D.,	Professor of Chemistry.
Joseph Leidy, M. D.,	Professor of Anatomy.
Henry H. Smith, M. D.,	Professor of Surgery.
Francis G. Smith, M. D.,	Professor of Institutes of Medicine.
R. A. F. Penrose, M. D.,	Professor of Obstetrics and the Diseases of Women and Children.
Alfred Stillé, M D.,	Professor of Theory and Practice of Medicine, and of Clinical Medicine.
D. Hayes Agnew, M. D.,	Professor of Clinical and Demonstrative Surgery.
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EXPENSES.

Fees for the Course of Lectures	$140
Matriculation Fee (paid once only)	5
Graduation Fee	30

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Edward Rhoads, M. D., Clinical Lecturer on Physical Diagnosis.
James Tyson, M.D., Clinical Lecturer on Microscopy and Chemistry, applied to Diseases of the Urinary Organs.
Edward A. Spooner, M. D., Clinical Lecturer on Diseases of Women and Children.
D. Hayes Agnew, M. D., Professor of Clinical and Demonstrative Surgery.
Harrison Allen, M. D., Clinical Lecturer on Syphilis.
George Strawbridge, M. D., William F. Norris, M. D., Clinical Lecturers on Diseases of the Eye and Ear.
James E. Garretson, M. D., Clinical Lecturer on Surgical Diseases of the Mouth.

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Horatio C. Wood, Jr., M. D.,	Professor of Botany.
F. V. Hayden, M. D.,	Professor of Mineralogy and Geology.
Henry Hartshorne, M. D.,	Professor of Hygiene.
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SUMMER TERM.—Medical instruction is given throughout the year; the Summer Session beginning at the close of the Winter Course of Lectures and continuing until the commencement of the next Winter Course. This Session is divided into two Terms by the summer vacation of two months. Gentlemen who finish their undergraduate course during the summer months, should join the Medical School at the beginning of the Fall Term, Sept. 13; their requisite three years of study being thus completed in time for the special examination for medical degrees, which precedes the annual commencement at Cambridge.

The DISSECTING ROOM is open and abundantly supplied with RECENT SUBJECTS, from October until May. No charge is made for anatomical material, or for demonstration, to students of the Summer Term.

FEES.—The fee for the Winter Lectures is $121; for instruction during the Summer Session, from March to November, $100. The fee for the entire year, for the

HARVARD UNIVERSITY.—Continued.

Winter Lectures as well as for the Summer Session, is $200. The fee for Graduation is $30. The fee for Matriculation is $5.

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George C. Shattuck, M. D., Hersey Professor of Theory and Practice of Physic.
Jeffries Wyman, M. D., Professor of Comparative Anatomy and Physiology.
Henry J. Bigelow, M. D., Professor of Surgery and Clinical Surgery.
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——— ———, Assistant Professor of Physiology.
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Francis Minot, M. D., Instructor in Theory and Practice.
Fitch E. Oliver, M. D., Instructor in Materia Medica.
Henry W. Williams, M. D., University Lecturer on Ophthalmology.
John P. Reynolds, M. D., Instructor in Obstetrics and Medical Jurisprudence.
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☞ A detailed account of the Winter and Summer Sessions, as well as of the Harvard Dental School, will be forwarded (post-paid) by David Clapp & Son, 334 Washington Street, Boston. The Janitor of the College will advise students in the selection of boarding places, and will always have a list of such as are in the vicinity of the College Building, varying in their rate of charges. Students are invited, on coming to town, to call upon the Dean of the Faculty, 114 Boylston Street, to whom all letters must be addressed. CALVIN ELLIS, M. D., *Dean of the Faculty.*

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THE FIFTEENTH ANNUAL SESSION, 1870-71.

FACULTY.

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E. Wildman, M. D., D. D. S., Prof. of Mechanical Dentistry and Metallurgy.
G. T. Barker, D. D. S., Prof. of Dental Pathology and Therapeutics.
James Truman, D. D. S., Prof. of Dental Histology and Operative Dentistry.
James Tyson, M. D., Prof. of Physiology and Microscopic Anatomy.
J. Ewing Mears, M. D., Prof. of Anatomy and Surgery.
J. M. Barstow, D. D. S., Demonstrator of Mechanical Dentistry.
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The Boylston Medical Committee, appointed by the President and Fellows of Harvard University, consists of the following Physicians:—

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J. B. S. Jackson, M. D.
D. H. Storer, M. D.
Charles G. Putnam, M. D.
Morrill Wyman, M. D.
Henry J. Bigelow, M. D.
Richard M. Hodges, M. D.
Calvin Ellis, M. D.
Samuel Cabot, M. D.

At the Annual Meeting of the Committee, it was voted that Prizes of Two Hundred Dollars each, be awarded to Henry P. Walcott, M. D., of Cambridge, Mass., and to G. D. Daly, M. D., of Lesueur, Minnesota, for dissertations on "Aphasia, or the Relation of the Brain to Speech."

The following are the questions proposed for 1871:—

1. Criticisms on the recent opinion of a medical writer, that the less serious Diseases of the Ear may be successfully treated by a well-qualified general practitioner, and the more serious affections by none.

2. Recent advances in the Pathology and Treatment of Cutaneous Disease.

Dissertations on these subjects must be transmitted, postpaid, to John Jeffries, M. D., Boston, *on or before the first Wednesday in April*, 1871.

The author of a dissertation considered worthy of a prize, on either of the subjects proposed for 1871, will be entitled to a premium of *one hundred and fifty dollars.*

The following are the questions proposed for 1872:—

1. The Pathology of the Malignant and Semi-Malignant Growths.

The author of a dissertation on this subject, considered worthy of a prize, will be entitled to a premium of *two hundred dollars.*

2. The Pathology and Treatment of Sunstroke.

The author of a dissertation on this subject, considered worthy of a prize, will be entitled to a premium of *one hundred and fifty dollars.*

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Each dissertation must be accompanied by a sealed packet, on which shall be written some device or sentence, and within which shall be inclosed the author's name and residence. The same device or sentence is to be written on the dissertation to which the packet is attached.

The writer of each dissertation is expected to transmit his communication to the

BOYLSTON MEDICAL PRIZE QUESTION.—Continued.

President, John Jeffries, M. D., in a legible handwriting, and with the pages properly secured together, within the time specified.

All unsuccessful dissertations are deposited with the Secretary, from whom they may be obtained, with the sealed packet unopened, if called for within one year after they have been received.

By an order adopted in 1826, the Secretary was directed to publish annually the following votes:—

1st. That the Board do not consider themselves as approving the doctrines contained in any of the dissertations to which premiums may be adjudged.

2d. That in case of publication of a successful dissertation, the author be considered as bound to print the above vote in connection therewith.

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2. A Course on Practical Ophthalmoscopy.
3. A Course of Operations on the Eye.

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Examinations, Lectures, and Clinical Instruction will be given during April, May, June, and September.

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